
ATTACHMENT 3**SOUTH ORANGE COUNTY IRWM PLANNING GRANT PROPOSAL****BACKGROUND****Introduction**

The South Orange County Watershed Management Area (WMA) includes the area that encompasses the San Juan Hydrologic Unity (SJHU) in South Orange County, California, as defined in the Water Quality Control Plan of the San Diego Basin (Basin Plan). The SJHU is a collection of coastal watersheds that covers 496 square miles in San Diego, Orange, and Riverside counties. The SJHU is naturally divided by major water bodies and represents an important water resource in one of the most arid regions of the nation. It is comprised of six major watersheds: 1) Laguna Coastal Streams, 2) Aliso Creek, 3) Dana Point Coastal Streams (Salt Creek), 4) San Juan Creek, 5) San Clemente Coastal Streams, and 6) San Mateo Creek, and two groundwater basins: 1) San Juan Valley Groundwater Basin and 2) San Mateo Groundwater Basin. Refer to Figure 1 for the South Orange County Watersheds (Att3_PG1_WorkPlan_3 of 4) and Figure 2 for Groundwater Basins (Att3_PG1_WorkPlan_4 of 4).

Located along the scenic and temperate southern coast of California, South Orange County is rich with history. Legacies passed on from native societies, once expansive cattle ranches, and twentieth century entrepreneurial farmers remain a part of the area's culture today. From the landmark Mission San Juan Capistrano near the stunning western coastline to the Cleveland National Forest in the east, South Orange County continues to be a destination known for beauty and a high quality of life.

Water is the key element for sustaining the County and South Orange County economies that allow the region to thrive. Planning and investments to carry the region through the next 25-year planning horizon are critical and are central to preserving the quality of life and planning for water and natural resources.

The South Orange County water supply is 90% dependent on imported water supply to serve water demands; intensifying the need for local groundwater management. The South Orange County Integrated Regional Water Management (IRWM) Plan is aimed at diversifying water sources by developing a variety of local opportunities to decrease the reliance on imported sources.

Regional Acceptance Process

The South Orange County Integrated Regional Water Management Group (South Orange County IRWMG) was recognized as a region during the Proposition 50, Chapter 8 Integrated Regional Water Management Program Implementation Grant (Prop 50) Round 1 effort.

In June 2005, the South Orange County IRWMG submitted the South Orange County Integrated Regional Watershed Management (IRWM) Plan for Proposition 50, Chapter 8 Integrated Regional Water Management Program Implementation Grant funds. In January 2007, the South Orange County IRWMP was one of seven statewide proposals recommended for funding. In July 2007, the South Orange County IRWMG executed a Prop 50 Integrated Regional Water Management Implementation Grant Agreement with the State Water Resources Control Board to

receive grant funds in an amount of \$25,000,000 for the seven highest ranking projects included in the South Orange County IRWMP.

In September 2009, the South Orange County Water Management Area (WMA) was recognized as a Region during the Region Acceptance Process (RAP). With the funding of the South Orange County IRWM Group's seven projects underway and the release of the new Proposition 84 IRWMP Standards, the South Orange County IRWMG identified areas of the existing South Orange County IRWM Plan (adopted in 2005) that need to be re-written/revised to reflect the new priority projects for the region and meet the Proposition 84 standards.

IRWMP Revisions

In response, the South Orange County IRWM Group initiated the IRWMP revisions, but lacked local funding to complete a significant portion required to meet Prop 84 standards. All IRWM planning in this region to date has been funded by the County of Orange on behalf of the stakeholders. This proposal identifies the remaining sections that need to be revised in order to complete the IRWM Plan, including:

- Water related objectives and conflicts
- Regional priorities
- Data and technical analysis and management
- Employment of integrated resource management strategies
- IRWM plan and implementation and impacts and benefits
- Climate change analysis
- Salt and nutrient management planning
- Floodplain management planning
- Groundwater management and facility planning
- Updated maps and figures reflecting WMA

This South Orange County IRWM Planning Grant Proposal proposes the following work plan components for funding: 1) Climate Change Analysis, 2) Salt & Nutrient Management Planning, 3) Floodplain Management Planning 4) Groundwater Management and Facility Planning, and 5) Revised South Orange County IRWMP to meet Proposition 84 IRWM Plan Standards.

The following describes the current status of the South Orange County IRWMP, including the partially completed revisions to meet the Proposition 84 requirements.

South Orange County IRWM Group

In August 2004, the County, South Orange County Cities, and special districts within the jurisdiction of the San Diego Water Board formed the South Orange County IRWM Group. The South Orange County IRWM Group was developed to more efficiently coordinate efforts to develop an IRWMP.

The South Orange County IRWMG is comprised of the following cities:

- Aliso Viejo
- Dana Point
- Laguna Beach
- Laguna Hills
- Laguna Niguel

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- Laguna Woods
 - Lake Forest
 - Mission Viejo
 - Newport Beach
 - Rancho Santa Margarita
 - San Clemente
 - San Juan Capistrano

Special districts and agency participants include:

- California State Parks
- City of San Clemente Utilities Divisions
- City of San Juan Capistrano Water Services Department
- County of Orange
- El Toro Water District
- Irvine Ranch Water District
- Laguna Beach County Water District
- Natural Resources Conservation Service
- Moulton Niguel Water District
- Municipal Water District of Orange County
- Orange County Flood Control District
- Orange County Health Care Agency
- San Juan Basin Authority
- San Diego Regional Water Quality Control Board
- Santa Margarita Water District
- South Coast Water District
- South Orange County Wastewater Authority
- Trabuco Canyon Water District

Other Participants in the South Orange County IRWMG include the following:

- California Department of Fish and Game (CDFG)
- California Department of Transportation (Caltrans)
- Clean Water Now! Coalition
- Juaneño Band of Mission Indians
- Latino Health Access (LHA)
- Miocean
- National Hispanic Environmental Council (NHEC)
- Nature Reserve of Orange County (NROC)
- Orange County Coastkeeper (Coastkeeper)
- Rancho Mission Viejo, LLC
- Sierra Club
- South Laguna Civic Association
- Surfrider Foundation (Laguna Beach Chapter)

Cooperative Agreement for South Orange County WMA

To further solidify this collaborative effort the South Orange County IRWM Group has established a Cooperative Agreement amongst its members. The Agreement provides a framework for planning and implementing water management strategies in the South Orange

County Watershed Management Area (WMA). The South Orange County WMA is discussed in further detail below.

South Orange County WMA (Region)

Within the San Diego Funding Area, the following three IRWM regions reside: San Diego, Upper Santa Margarita, and South Orange County. In September 2009, the South Orange County WMA was recognized as a Region during the Region Acceptance Process (RAP). The County of Orange was selected to submit the RAP materials on behalf of the South Orange County IRWM Group¹. The following provides the background on the South Orange County WMA development.

In June 2003, per direction from the Orange County Board of Supervisors, the OC Public Works Department, formerly the Resources and Development Management Department, led a task force of city managers and special district general managers, to develop a countywide Water Quality Strategic Plan. The task force proposed a new governance model for water resource management programs based on three geographic sub-areas of the County: the North, Central, and South Orange County Watershed Management Areas (WMA). From this water quality strategic planning effort, the County was designated to serve as a regional program administrator. The WMA concept formalizes a partnership between the County, the Orange County Flood Control District, cities, and water and wastewater agencies.

The South Orange County WMA includes the area that encompasses the San Juan Hydrologic Unit (SJHU) in South Orange County, California, as defined in the Water Quality Control Plan of the San Diego Basin (Basin Plan).

The South Orange County IRWM Group determined that the South Orange County WMA, as defined herein, is an appropriate Region for integrated water planning because of its congruence with the natural hydrogeologic barriers of the SJHU within the San Diego Water Board boundaries. The San Diego Water Board boundary stretches along 85 miles of scenic coastline from South Newport Beach to the Mexican Border and extends 50 miles inland to the crest of the coastal mountain range. The San Diego Water Board boundary makes up the northern border of the South Orange County WMA while the Southern border is consistent with the border of the County of Orange.

The appropriateness of the Region is supported by its congruence with the natural hydrogeologic barriers of the SJHU, the Region 9 Water Quality Control Board, and the collaborative nature of the agencies that strive for efficient and environmentally sound management of the Region's natural resources.

The SJHU is a collection of coastal watersheds that covers 496 square miles in San Diego, Orange, and Riverside counties. The SJHU is naturally divided by major water bodies and represents an important water resource in one of the most arid regions of the nation. It is comprised of six major watersheds: 1) Laguna Coastal Streams, 2) Aliso Creek, 3) Dana Point Coastal Streams (Salt Creek), 4) San Juan Creek, 5) San Clemente Coastal Streams, and 6) San Mateo Creek, and two groundwater basins: 1) San Juan Valley Groundwater Basin and 2) San Mateo Groundwater Basin.

¹ South Orange County Watershed Management Area – Region Acceptance Process, April 2009

Three counties and several municipalities have jurisdiction over portions of the SJHU. Riverside County includes a small portion (17.8%) of the SJHU, and no municipalities are found within this portion. More than half of the SJHU (51.7%) is located within the County of Orange, and the remainder (30.5%) is in San Diego County. In the County of Orange, the cities of Aliso Viejo, Mission Viejo, Laguna Beach, Laguna Woods, Laguna Niguel, Dana Point, Lake Forest, Rancho Santa Margarita, San Juan Capistrano, and San Clemente occur within the SJHU. Although a small portion (7.2%) of the SJHU is developed, most of this development is concentrated within the north-western portion of the SJHU. The undeveloped portion, the Southern and interior portions, occupies 91.8% of the SJHU. Agricultural land use occupies less than 1% of the land. A very large and mostly undeveloped portion of the watershed is encompassed by the Camp Pendleton Marine Corps Base in northern San Diego County. Other large areas of open space are found within the Cleveland National Forest. Caltrans is another major landowner, and it has jurisdiction over the major freeways that traverse the watershed.

Tri-County Funding Area Coordinating Committee (Tri County FACC)

The Tri-County Funding Area Coordinating Committee (Tri- County FACC) is a collaborative effort among the three neighboring IRWM regions in the San Diego Funding Area to discuss planning and projects of mutual interest. Through the Tri-County FACC, the Upper Santa Margarita Regional Watershed Management Group (RWMG), San Diego RWMG, and South Orange County IRWM Group collaborate in an inter-regional body established via a Memorandum of Understanding (MOU):

- *Riverside County Upper Santa Margarita RWMG* includes the following members: Riverside County Flood Control and Water Conservation District (RCFCWCD), County of Riverside, and Rancho California Water District (RCWD).
- *San Diego RWMG* includes the following members: City of San Diego, County of San Diego, and San Diego County Water Authority (SDCWA).
- *South Orange County IRWM Group* includes the following members: County of Orange, Municipal Water District of Orange County (MWDOC), and South Orange County Wastewater Authority (SOCWA).

The Tri-County FACC enables the three RWMGs to balance the necessary autonomy of each planning region to plan at the appropriate scale with the need to improve inter-regional cooperation and efficiency. It ensures close coordination of the three planning regions to improve the quality and reliability of water in the San Diego Funding Area. The three RWMGs will work together with their advisory groups to identify cross-boundary projects and common programs of value across planning regions and align project implementation.

The Tri-County FACC builds a foundation that ensures sustainable water resources planning within the Funding Area. The three RWMGs commit to coordinated planning within the Watershed Overlay Areas— one comprising the San Mateo Creek watershed area and the other the Santa Margarita River watershed area - which cross planning region boundaries. This approach will capture the integration of water supply, wastewater, and watershed planning across regions in the three coordinated IRWM Plans.

Each of the Tri-County FACC members has prepared and adopted an IRWM Plan and desires close coordination to enhance the quality of planning, identify opportunities for supporting

common goals and projects, and improves the quality and reliability of water in the San Diego Funding Area. The Tri-County FACC will coordinate and work together with their advisory groups to address issues and conflicts across planning regions, identify common objectives and projects that address those needs, and provide general planning cooperation for shared watersheds.

By consensus, the Tri-County FACC has developed an agreement to improve IRWM planning in the Funding Area to coordinate across planning region lines and facilitate the appropriation of funding for IRWM projects.

Existing South Orange County IRWM Plan Status

As described in the Introduction, the South Orange County IRWMP was adopted in 2005. The County was established as the lead agency for IRWMP implementation, and MWDOC and SOCWA as providers of significant resources and leadership in South Orange County WMA. Therefore, the Board of Directors for each of these three agencies adopted or accepted the IRWMP by resolution as follows: The County of Orange Board of Supervisors accepted on June 7, 2005, Resolution No. 05-143; the Municipal Water District of Orange County Board of Directors adopted on June 15, 2005, Resolution No. 1768; and the South Orange County Wastewater Authority Board of Directors adopted on June 2, 2005, Resolution No. 2005-07. In addition to the resolutions stated above, the other South Orange County IRWMG members adopted, accepted, or approved the IRWMP are as follows:

Resolutions of Adoption

- City of Aliso Viejo
- City of San Juan Capistrano
- El Toro Water District
- Municipal Water District of Orange County
- San Juan Basin Authority
- Santa Margarita Water District
- South Coast Water District
- South Orange County Wastewater Authority
- Trabuco Canyon Water District

Resolutions of Acceptance

- City of Dana Point
- City of Laguna Beach
- City of Laguna Niguel
- City of Laguna Woods
- City of Mission Viejo
- City of San Clemente
- County of Orange
- Moulton Niguel Water District

Resolutions of Support

- City of Laguna Hills
- City of Rancho Santa Margarita

Letters of Support

- City of Lake Forest

IRWMP Needs

As described in the Introduction, the 2005 adopted South OC IRWM Plan needs to be re-written to reflect the region's accomplishments and meet new Prop 84 state requirements. With the funding of several projects during the Proposition 50, Chapter 8 Integrated Regional Water Management Program Implementation Grant (Prop 50) Round 1 effort, the IRWM Plan needs to reflect the region's accomplishments and incorporate the following components: 1) Climate Change Analysis, 2) Salt & Nutrient Management Planning, 3) Floodplain Management Planning, 4) Groundwater Management and Facility Planning, and 5) Revised South Orange County IRWMP to meet Proposition 84 IRWM Plan Standards.

The following components also need to be completed and incorporated into the Plan: water related objectives and conflicts, regional priorities, data and technical analysis & management, employment of integrated resource management strategies, IRWM plan and implementation and impacts & benefits, climate change analysis, salt and nutrient management planning, floodplain management planning, and groundwater management and facility planning. Updated Maps and Figures are also required to clearly identify the South Orange County IRWM Group and Watershed Management Area (WMA). These components are included as tasks in the proposed Work Plan.

Public Process for Stakeholders' Involvement

The South Orange County IRWM Group currently has a public process in place to identify and include stakeholders in the planning and decision making process for the IRWM Plan. Participants in the South Orange County IRWM Group have worked individually and collaboratively over 30 years to develop and integrate regional strategies that address, raise awareness, and coordinate numerous and varied water management projects. In conjunction with these efforts, the South Orange County IRWM Group uses a variety of methods to engage the general public and stakeholders. They include participating in stakeholder meetings, inclusion in the IRWM process, communication via email and information sharing via the County's website www.ocwatersheds.com. The website also provides contact information and email links for all South Orange County IRWM Group members

On August 24, 2004, the first meeting of the South Orange County IRWM Group was held. This meeting included multiple stakeholders in South Orange County, attended by the County, cities, and water and wastewater agencies. The South Orange County IRWM Group identified preliminary goals, objectives, and priorities for meeting the water resource needs of South Orange County, and set a schedule for future meetings.

Meetings were held at least twice a month through the development of the IRWM Plan, beginning September 13, 2004. The South Orange County IRWM Group continues to inform and invite additional stakeholders to the South Orange County IRWM Group meetings, and the South Orange County IRWM Group has grown to represent at least 30 entities. The stakeholders represent agencies and organizations that have developed an integrated approach to addressing the objectives and water management strategies of the IRWM Plan. Significant progress was made to identify the myriad of projects that have been included in existing plans and incorporating those projects into the IRWM Plan.

The following is a list of the South Orange County IRWM Group meetings held to date:

- September 14, 2004
- October 11, 2004
- October 25, 2004
- November 8, 2004
- November 22, 2004
- December 13, 2004
- January 3, 2005
- January 17, 2005
- January 31, 2005
- February 16, 2005
- February 28, 2005
- March 14, 2005
- April 18, 2005
- May 2, 2005
- May 16, 2005
- May 31, 2005
- July 11, 2005
- January 17, 2006
- February 6, 2006
- March 24, 2006
- April 10, 2006
- February 17, 2007
- July 2, 2007
- November 15, 2007
- July 22, 2008
- September 18, 2008
- October 15, 2008
- November 20, 2008
- April 15, 2009
- March 30, 2010
- May 4, 2010
- May 25, 2010
- August 3, 2010

As the South Orange County IRWM Plan was being developed, numerous iterations of the Draft South Orange County IRWM Plan were made available to the South Orange County IRWM Group and public stakeholders for review and comment. As part of the public outreach process, comments were received, reviewed and discussed by multiple participants of the South Orange County IRWM Group prior to incorporation into the Final South Orange County IRWM Plan.

A PowerPoint presentation explaining the IRWM process was developed for South Orange County IRWM Group participants to use in educating their individual City Councils, Board of Directors, and residents. In addition, a fact sheet was developed and distributed to each participating stakeholder for use in informing their boards, councils, constituents and customers on the efforts of the South Orange County IRWM Group. The fact sheet explained that a diverse group of water, wastewater, and watershed agencies and professionals had come together as a single unit to create stronger regional partnerships and connectivity, to maximize the efficiency of their efforts, and to develop a South Orange County IRWM Plan.

The presentation and fact sheet were frequently used by the South Orange County IRWM Group during the IRWM Plan development process. Over 100 presentations were provided at Public Stakeholder, Board of Directors, Board of Supervisors, City Council and Water Board meetings.

To further demonstrate the success of the public outreach process, the following letters of support were received from non-agency stakeholders:

- *Orange County Business Council.* January 13, 2005, Terry Hartman, Chair, Infrastructure Committee; Julie Puentes, Executive VP Public Affairs. Supports collaborative effort for water reliability in the Region.
- *MIOCEAN.* March 4, 2005, Patrick R. Fusco, P.E., Chairman. Supports organization of the South Orange County IRWMG to prioritize and implement projects in the Region.
- *Surfrider, Laguna Beach Chapter.* June 13, 2006, Rick Wilson Chairman. Supports IRWMP's holistic, region-wide approach to water management and open dialogue it has facilitated in South Orange County.

The South Orange County IRWM Group provided informational presentations on the status and progress of the South Orange County IRWM efforts in 2008:

- March 2008: Update on South Orange County IRWM Group Efforts presented to the County Board of Supervisors
- August 2008: Integrated Watershed Management Planning Efforts in the County provided to American Society of Civil Engineers

The County of Orange will continue to provide information and updates on the IRWM process through the OC Watersheds IRWM webpage at: www.ocwatersheds.com/wma_IRWM.aspx. This webpage provides information including: descriptions of County WMAs, the IRWM grant process, calls for projects and project information forms, Coastal Coalition meetings and presentations, IRWM Group meeting announcements, and IRWM Plan updates.

The South Orange County IRWM Group continues to meet to discuss IRWM Plan implementation, collaborative opportunities, the status of existing projects, proposals for new projects, updates from the State, potential funding opportunities and the need for plan refinements. As mentioned previously the County of Orange will provide information and updates on the IRWM process through the OC Watersheds IRWM webpage at: www.ocwatersheds.com/wma_IRWM.aspx. Members of the IRWM Group will have access to: IRMW work products; committee meeting schedules, agendas, and summaries; contact information; and links to relevant web pages and information.

The South Orange County IRWM Group members can access and share planning documents and information via a project website maintained by a County consulting firm. The website contains meeting notes, presentations, and technical reports regarding the IRWM Plan and process.

Cooperation among South Orange County IRWM Group members and stakeholders for the development and implementation of the IRWM Plan has been exceptional. One example of this is the Gobernadora Multi-purpose Basin (Project), which is anticipated to be approximately 35 acres, located upstream of Gobernadora Ecological Reserve Area (GERA) and just south of the Coto De Caza planned community. Important benefits from early delivery and expanded use of the Project include:

- Erosion control stabilization and reduction of sediment degradation
- Water quality runoff enhancement
- Water recycling and harvesting for regional water conservation (for SMWD water supplies to the Portola Reservoir)
- Potential for ground water recharge
- Regional trail connection from Thomas F. Riley Park to Caspers Wilderness Regional Park

The Project has required coordination among many entities and includes facilities for water quality, drainage peak flow retarding, regional riding and hiking trail, and nonpotable water extraction/recycling. A concept plan for the Project has been approved by the public and private Stakeholders. This Project has served as a catalyst in bringing together the public and private interests.

A Memorandum of Understanding (MOU) has been prepared between Santa Margarita Water District (SMWD), County of Orange (County) and Rancho Mission Viejo, LLC (RMV)

(“Partners”). in anticipation of the negotiation and potential execution/delivery of an Implementation Agreement that fully addresses the Project and the Partners’ rights, responsibilities and obligations of the Stakeholders. In the MOU, the Partners have addressed the following key features of the Project:

1. Environmental Certification
2. Costs and Funding Plan
3. Design
4. Right-of-way
5. Construction
6. Ownership and Concurrent Use
7. Operations and Maintenance (O&M)
8. Consistency with Ranch Plan.

In addition to sharing information and coordinating amongst themselves the South Orange County IRWM Group met with State Water Board, San Diego Regional Water Board and California Department of Water Resources (DWR) staff throughout the South Orange County IRWM planning process. Local and Sacramento meetings were held to discuss planning efforts including coordination of the South Orange County IRWM Plan development, objectives, strategies, project prioritization and implementation. The South Orange County IRWM Group has developed a positive working relationship with IRWM Program staff at the State Water Board while administering the Prop 50 grant funds.

The South Orange County IRWM Group continues to coordinate with DWR staff regarding Proposition 84. During the Regional Acceptance Process (RAP) process, the County and members of the South Orange County IRWM Group met with DWR staff to discuss how the South Orange County WMA collaborates as a Region. Following the meeting, the South Orange County WMA was approved as a Region. DWR staff is invited to attend South Orange County IRWM Group meetings and have attended the March 30, 2010 meeting to answer questions.

Tri-County FACC Stakeholder Identification and Coordination

The Upper Santa Margarita RWMG, San Diego RWMG, and South Orange County RWMG collaborate in an inter-regional body established via MOU and known as the Tri-County FACC:

- **Riverside County Upper Santa Margarita RWMG** includes the following members: Riverside County Flood Control and Water Conservation District (RCFCWCD), County of Riverside, and Rancho California Water District (RCWD).
- **San Diego RWMG** includes the following members: City of San Diego, County of San Diego, and San Diego County Water Authority.
- **South Orange County RWMG** includes the following members: County of Orange, Municipal Water District of Orange County (MWDOC), and South Orange County Wastewater Authority (SOCWA).

The Tri-County FACC enables the three RWMGs to balance the necessary autonomy of each planning region to plan at the appropriate scale with the need to improve inter-regional cooperation and efficiency. It ensures close coordination of the three planning regions to improve the quality and reliability of water in the San Diego Funding Area. The three RWMGs will work together with their advisory groups to identify cross-boundary projects and common programs of value across planning regions and align project implementation. The Tri-County FACC builds a

foundation that ensures sustainable water resources planning within the Funding Area. The three RWMGs commit to coordinated planning within the Watershed Overlay Areas – one comprising the San Mateo Creek watershed area and the other the Santa Margarita River watershed area -- which cross planning region boundaries. This approach will capture the integration of water supply, wastewater, and watershed planning across regions in the three coordinated IRWMs. Each of the Tri-County FACC members has prepared and adopted an IRWM Plan and desires close coordination to enhance the quality of planning, identify opportunities for supporting common goals and projects, and improve the quality and reliability of water in the San Diego Funding Area. The Tri-County FACC will coordinate and work together with their advisory groups to address issues and conflicts across planning regions, identify common objectives and projects that address those needs, and provide general planning cooperation for shared watersheds.

IRWMP Needs

Ongoing public outreach and Tri-County FACC coordination will be required during the IRWM Plan Update. These are tasks proposed in the Work Plan.

Public Process for Disadvantaged Communities' Involvement

Disadvantaged Community (DAC) involvement is an important part of the South Orange County IRWMP process that continues to develop. The County began the process of engaging DACs by identifying the DAC areas in the South Orange County WMA. The DAC areas occur mainly in the City of Laguna Hills and San Clemente, with a few pocket areas occurring in San Juan Capistrano, Laguna Hills and Laguna Woods. The South Orange County WMA has a total population of 597,348 with a disadvantaged population of 7,077, a small percentage of the South Orange County WMA's population but an important community.

The disadvantaged communities of South Orange County predominantly utilize the waters within the Region as recreational hubs. The surrounding areas of Doheny State Beach Park, the Dana Point Harbor, area beaches, and parks located along regional stream courses serve as community gathering places for these communities and are used heavily year round on the weekends. Many of the recreational areas are accessible via public transit and do not charge an entrance fee for walk-in visitors.

Poor water quality can negatively impact the recreational opportunities for disadvantaged community members. Several projects within the IRWMP focus on identifying the cause of water pollution for Doheny Beach and other beaches within the Region. Water quality is a key consideration for the Region to ensure protection of the health and safety of the entire population in the area, especially for the disadvantaged community residents that do not have the means to travel to other areas of the state or country. By addressing water quality issues in areas of recreational use, the IRWMP incorporates environmental justice in a way that provides every resident equal opportunity and fair treatment in the regional water planning process.

Multiple creek restoration, wetland, and Arundo removal projects are located in the Region. Disadvantaged community members use natural areas that are open and available to the public at no cost. These projects meet multiple objectives and provide recreational and aesthetic benefits. Expanded recreational opportunities include contact and non-contact water recreation, walking paths, bird watching, nature study, painting and photography, and other passive activities are available at no cost to all community members.

Educational and public outreach activities will increase residents' understanding and appreciation of watersheds and other areas of significance, including how human interaction impacts habitat areas and other natural resources. Projects like the proposed Crystal Cove & Lantern Bay Park Xeriscape Demonstration Gardens and the South OC Smart Landscape Project will assist in meeting the regional need for public education in the stewardship of watershed resources. The projects will fill educational and recreational purposes, and provide and demonstrate environmental benefits. The projects will inspire broad implementation of water quality and water conservation improvements across the community.

Juaneño Band of Mission Indians

South Orange County is home to the Juaneño Band of Mission Indians and a large Hispanic population. Each of these groups includes large communities of disadvantaged residents therefore it was essential to include them in the IRWMP planning process. The Juaneño Band of Mission Indians and the National Hispanic Environmental Council have provided valuable information needed to identify the disadvantaged members of the South Orange County WMA. The South Orange County IRWMP will continue to actively involve regional minority communities, including the Juaneño Band of Mission Indians and Hispanic community groups to ensure their active involvement and representation in the IRWMP process.

Latino Health Access

In order to develop a DAC Outreach Program that could be used countywide, OC Watersheds staff (Staff) partnered with Latino Health Access. Latino Health Access (LHA) is a local nonprofit organization founded in 1993 to help meet the multiple health needs of the Latino community. LHA assists in improving the quality of health and life of uninsured, under-served people by providing them with quality preventive care services and educational programs.

Although LHA lacks a direct connection to water resources, their in-depth community involvement, specifically through "Pasa La Voz", Pass the Voice, a program that focuses on civic engagement and increased political participation make them a valuable networking resource.

Staff began outreach with LHA to determine how to include the group and their members in the IRWMP process. On February 7, 2009, OC Watersheds Staff provided an informational presentation at an all day workshop in Santa Ana. The presentation was provided in Spanish and included information on Prop 84 IRWMP grants, examples of regional water projects that have been completed in other DAC areas, and how LHA can benefit from associated funding.

As a result of OC Watersheds' targeted outreach, LHA submitted a project for inclusion in the Central Orange County IRWMP. The project involves the development of a pocket park in the 92701 zip code, one of Santa Ana's poorest communities. The park will include a basketball court, playground, community center with a multi-purpose room, full industrial kitchen, and a walking path. Located two blocks from downtown Santa Ana and next to Spectrum condominiums, the LHA Park and Community Center will be within walking distance for most residents. In addition, LHA plans to offer nutrition and physical activity, English as a Second Language, and mental health support programs at the Center. The Community Center will be seeking Silver Certification under the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, which means that the construction will have to include water-use efficiency among other environmentally-responsible measures.

OC Watersheds will continue to support this project by offering in-kind services, such as support from its staff who have been LEED certified and support for Site Cleanup events. In addition, Staff will expand this successful outreach program to North and South Orange County.

Latino Water Coalition

In an attempt to further connect with DACs and the organizations that serve them, OC Watersheds staff recently attended a Latino Water Coalition event at the Orange County Water District. The California Latino Water Coalition (CLWC) advocates improving the State's water supply today to ensure economic prosperity for tomorrow. They believe additional water resources are directly linked to creating jobs, stability and opportunity throughout California. The CLWC engages in public education, outreach and events to generate support and understanding on water issues. The CLWC is a statewide coalition of influential Latino leaders that supports development of San Joaquin-Sacramento Delta environmental, conveyance and sustainability solutions along with additional water resources in California. With actor-comedian Paul Rodriguez as chairperson, the organization's goal is to demonstrate the need for a comprehensive statewide water infrastructure plan, a program that includes groundwater and surface water storage capabilities, conservation and water resources stewardship, water recycling and desalinization.

In the future, OC Watersheds staff also plans to outreach to DACs about drinking water quality standards. The drinking water quality is good throughout the County. However, Orange County residents who are immigrants from areas with poor water quality where drinking bottled water is a necessity may have concerns about drinking water straight from the tap. They may feel the need to continue purchasing and drinking bottled water. Therefore, OC Watersheds staff will design a program to educate DACs about the safety of the drinking water in Orange County with the hope that bottled water consumption by DACs will decrease. OC Watersheds staff hopes that a decrease in the detrimental watershed effects that stem from bottled water production and consumption will then follow.

The County's outreach to DACs has been well received and this evident in enthusiastic letters of support received from both the Juaneño Band of Mission Indians and National Hispanic Environmental Council.

IRWMP Needs

Ongoing outreach to DACs and Native American tribes will be required throughout the IRWM Plan update. These are proposed tasks included in the work plan.

Process for Objectives and Conflicts

The South Orange County IRWM Plan focuses on the South Orange County WMA vision of total watershed efficiency. The Plan primarily builds upon the projects and plans of the member agencies, with an emphasis on water supply and water reliability. The key challenges facing South Orange County are reflected in each of the individual member agencies' responsibilities. The South Orange County IRWM Group has major water-related issues and conflicts in the areas identified in the table below:

South Orange County WMA Issues/Challenges

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> ▪ Water Supply | <ul style="list-style-type: none"> ▪ Recycled Water | <ul style="list-style-type: none"> ▪ Flood Management |
| <ul style="list-style-type: none"> ▪ Water System Reliability | <ul style="list-style-type: none"> ▪ Groundwater Management | <ul style="list-style-type: none"> ▪ Wastewater Management |
| <ul style="list-style-type: none"> ▪ Water Conservation | <ul style="list-style-type: none"> ▪ Water Quality Management | <ul style="list-style-type: none"> ▪ Climate Change |

The South Orange County WMA issues/challenges identified above were considered in the development process for the regional objectives, as described below.

Development of Watershed Management Area (WMA) Objectives

The IRWM Plan considers long-term regional planning for flood management; urban runoff management; watershed management; water use efficiency; water supply and reliability; recycled water; habitat preservation, conservation, and restoration; water quality protection and improvement; resource stewardship; and related water resource management strategies facing the WMA over the next 20 to 50 years.

Through biweekly South Orange County IRWM Group meetings, the members developed draft IRWM Plan objectives. In developing the draft objectives, the South Orange County IRWM Group considered Regional Conflicts, Basin Plan Objectives, California's 20x2020 Water Conservation Plan, and IRWM Planning Minimums, as described in the following sections.

Regional Conflicts

In developing the objectives, the South Orange County IRWM Group considered long-term regional planning conflicts and issues including identification of enhanced local water supplies to offset reduction of imported water to meet demands during times of drought. Though many projects are planned over the next 10 to 20 years to help achieve this goal, much more long-term planning, as well as implementation of integrated projects in all categories included in this IRWM Plan, is necessary to reach that goal. The South Orange County IRWM Group has major water-related issues and conflicts related to water supply, water system reliability, water conservation, recycled water, groundwater management, water quality management, flood management, wastewater management, and climate change. The South Orange County IRWM Group considered these conflicts as well as the Water Quality Control Plan of the San Diego Basin (Basin Plan) Objectives, the 20X2020 Water efficiency goals, and IRWM Planning Minimums.

Competing interests arise with South Orange County's effort to use its local groundwater resources. Conflicting interests including flood management, urban runoff management, natural resource preservation and land use policies are competing, or in some way impeding the use of the same resources.

Natural resource and habitat preservation conflict with the potable use of groundwater by encouraging the planting and reestablishing of habitat. Phreatophyte water use can account for as much as 25% of the yield of the groundwater basin during the summer months. Other projects are encouraging the reestablishments of fish populations. It remains to be seen how much this will reduce the amount of groundwater extractions available for potable water use.

Land use practices have conflicted with water resource use. As an example, portions of the San Juan Basins have been contaminated by gas stations and dry cleaners leakage or spills. There is still a great amount of agriculture in the watershed including citrus, field crops, and live stock (horse stables). Much has been done to eliminate contamination from runoff from these activities but they still contribute salts to the groundwater basins.

Tri-County FACC Issues/Conflicts

The Tri-County FACC is a formal partnership established in April 2009 through joint adoption of an MOU outlining measures for inter-regional coordination. The efforts of the Tri-County FACC are intended to enhance the quality of water resources planning and to improve the quality and reliability of water in the Funding Area. This partnership is a unique opportunity to collaborate with neighboring planning regions to address common objectives, issues, and conflicts. Of particular significance, the Santa Margarita River watershed has been subject to over 80 years of water rights litigation, studies, and hearings. In 1990, the “Four Party Agreement” between Rancho California Water District (RCWD), Fallbrook Public Utility District (FPUD), Eastern MWD, and Camp Pendleton attempted to address the conflict through discharge of recycled water to the Santa Margarita River for groundwater recharge. However, the ongoing conflict now involves uncertainty about meeting Regional Board effluent standards, which dictates the ability of RCWD to discharge into the watershed. The new partnership between San Diego and Riverside county agencies via the Tri-County FACC is helping to address those conflicts.

Basin Plan Objectives

The Basin Plan is the Regional Board's plan for achieving the balance between competing uses of surface and groundwaters in the San Diego Region. The Basin Plan establishes or designates beneficial uses and water quality objectives for all the ground and surface waters of the Region. This South Orange County IRWM Plan applies the Basin Plan objectives to consider beneficial uses and determined water quality (WQ), groundwater (GW), and flood management (FM) objectives.

The South Orange County WMA includes the area that encompasses the San Juan Hydrologic Unit (SJHU) in South Orange County, California, as defined in the San Diego Basin Plan.

20X2020 Water Efficiency Goals

California's 20x2020 *Water Conservation Plan* sets forth a statewide road map to maximize the state's urban water efficiency and conservation opportunities between 2009 and 2020, and beyond. It aims to set in motion a range of activities designed to achieve the 20 percent per capita reduction in urban water demand by 2020. These activities include improving an understanding of the variation in water use across California, promoting legislative initiatives that incentivize water agencies to promote water conservation, and creating evaluation and enforcement mechanisms to assure regional and statewide goals are met.

The South Orange County IRWM Group considered California's 20X2020 Water Conservation Plan in identifying the long-term water supply and water quality issues facing the WMA over the next 20 to 50 years. All project categories within this plan are essential to maximizing limited water resources, including enhancing water efficiency and conservation. The water supply (WS)

and water conservation (WC) objectives reflect the WMA's effort to meet the 20X2020 water efficiency goals.

IRWM Planning Minimums

The South Orange County IRWM Group included Section 105409 (c) of the California Water Code in developing the WMA's objectives, including the IRWM Planning Minimums as listed below:

- Protection and improvement of water supply reliability, including identification of feasible agricultural and urban water use efficiency strategies.
- Identification and consideration of the drinking water quality of communities within the area of the plan.
- Protection and improvement of water quality within the area of the plan consistent with relevant basin plan.
- Identification of any significant threats to groundwater resources from overdrafting.
- Protection, restoration, and improvement of stewardship of aquatic, riparian, and watershed resources within the WMA.
- Protection of groundwater resources from contamination.
- Identification and consideration of water-related needs of disadvantaged communities in the area within the boundaries of the plan.

The South Orange County IRWM Group used these planning minimums as guides in developing the WMA objectives and sub-objectives.

WMA Draft Objectives

The Objectives Standard requires that objectives must be measurable. A measurable objective means there must be some metric the WMA can use to determine if the objective is being met as the IRWM Plan is implemented. IRWM Plans are implemented through projects, relevant to measuring objectives. Metrics must apply to projects which in turn relate back to Plan objectives. Objectives are measured quantitatively or qualitatively, as appropriate.

In order to address the major water challenges within the WMA, the following draft objectives were compiled:

1. Water Supply (WS)
2. Groundwater Management (GM)
3. Aquatic/Riparian Ecosystems and Watershed Management (AE)
4. Water Conservation (WC)
5. Water Quality (WQ)
6. Wastewater Management (WW)
7. Flood Management (FM)
8. Information Management (IF)
9. Community Integration (CI)
10. Climate Change (CC)

The draft objectives were reviewed by each member of the South Orange County IRWM Group for relevance to the WMA. Input from the Cities, water and wastewater districts, and the County was instrumental in reflecting information contained in recent watershed, land use, and natural resources management plans for the WMA.

Based on the draft objective, sub-objectives were developed to include metrics for quantifying the outcomes and tracking progress of achieving each objective. The draft sub-objectives were presented to the South Orange County IRWM Group for review and input. However, some of the sub-objectives contain incomplete metrics. These sub-objectives are listed below:

Draft Water Supply Objectives

The following sub-objectives reflect the WMA's water supply planning:

- ***WS-1: Diversified Supplies:*** Increase diversification of water supplies to continue to meet South Orange County's future needs. Expand local water sources including conservation from the current 19% of supplies to 30% by 2030. Total demands are projected to increase by about 21,000 AF, while imported water sources are projected to increase by 7,000 AF.
- ***WS-2: Reliability:*** Improve system reliability to meet customer demands in times of imported water system failure. Meet customer demands without the imported water system for a minimum of 7 days at average demands by 2012 and 20 days at peak summer demands by 2020.
- ***WS-3: Water Reuse:*** Increase the efficient use of recycled water from municipal wastewater sources by 70% by 2020 to support the State Water Resource Control Board's Recycled Water Policy.
- ***WS-4: Dry Weather Runoff:*** Develop measures for reducing dry weather runoff for reuse by 2012.
- ***WS-5: Local Water Supply Development Policy:*** Develop policy or plan requiring new development to reduce dependence on imported water by 2030. Require rainwater capture systems in new development projects.
- ***WS-6: Drought Preparedness:*** Address long-term drought preparedness by implementing prevention, response, and recovery plans. 100% of agencies adopt drought preparedness plans by 2011.
- ***WS-7: Oceanwater Desalination:*** Produce 25 MGD (28,000 AF per year) of Oceanwater Desalination as a new drought proof supply by 2020.

Draft Groundwater Management Objectives

South Orange County is 90% dependent on imported water to serve water demands; intensifying the need for local groundwater management. The total calculated storage capacity of the San Juan Valley Groundwater Basin is estimated to be 90,000 acre-feet. Some of the storage capacity cannot be used because of potential sea water intrusion, economic reasons, or poor water quality. The San Juan Basin is a shallow basin that has been categorized as an underground flowing stream which also limits storage capabilities.²

² Department of Water Resources, 1972, *Bulletin No. 104-7, Planned Utilization of Water Resources in the San Juan Creek Basin Area*.

Groundwater sources are highly desirable in terms of water quality, cost, utilization of local energy resources, and also contribute to the WMA being less dependent on imported water supplies on an overall basis. However, they are subject to interruption during drought conditions that occur, therefore projects dedicated to recharge efforts and groundwater quality measures are of particular significance to the regional water supply.

The following groundwater management sub-objectives reflect the WMA's planning goals.

- **GM-1: Groundwater Recharge:** Increase the recharge capability and pumping capacity of the San Juan Basin by 5,000 AF above the 2010 dependable yield capacity of 5,000 AF by 2030.
- **GM-2: Groundwater Quality:** Protect groundwater from contamination by balancing groundwater pumping with increased recharge capabilities.

Draft Aquatic/Riparian Ecosystem Restoration and Protection Objectives

To assist with meeting Aquatic/Riparian Ecosystems and Watershed Management objectives, regional programs have been established that include partnerships between multiple projects to provide broad regional benefits, while maximizing resources.

The South Orange County WMA works closely with the Nature Reserve of Orange County (NROC), a 501(c)(3) nonprofit corporation that manages the Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) for the Central and Coastal Subregion of Orange County, California. It coordinates land management activities of public and private landowners within the 37,000 acre reserve system, conducts wildlife and habitat research and monitoring, and restores disturbed habitats. The South Orange County WMA includes a number of protected areas that form a network of interconnected and isolated biological communities within the Central and Coastal and Southern Subregion NCCP/HCP.

The following sub-objective metrics will be developed during the IRWMP update to reflect the WMA's ongoing efforts for Aquatic/Riparian Ecosystem restoration and protection:

- **AE-1: Regional Aquatic Ecosystems:** Enhance the functioning of regional aquatic ecosystems and reduce impacts from urban runoff.
- **AE-2: Watershed Management:** Implement urban runoff BMPs to reduce impact to receiving waters and protect the environmental quality of riparian ecosystems.

Draft Water Conservation Objectives

Water conservation programs and demand curtailment are ways to extend the availability and reliability of existing supply. Curtailment or rationing is a viable option for short-term supply shortages, which may include limiting potable landscape meters during emergencies. As signatories to the Memorandum of Understanding containing 14 Best Management Practices (BMPs) for urban water conservation in California, MWDOC and south Orange County water agencies are voluntarily committed to the implementation of low cost effective BMPs. Examples of BMP's include: home water surveys, low-flow showerhead and toilet retrofits, clothes washer

retrofits, landscape irrigation budgets, education, public information, industrial process water improvements and water waste prohibitions.

Water conservation is an effective and reliable component to reducing regional reliance on imported water as the population of south Orange County continues to grow. The following sub-objectives reflect the WMA's dedication to water conservation:

- **WC-1: Water Conservation Plan:** Implement projects consistent with Governor Schwarzenegger's 20x2020 Water Conservation Plan of 2010. 20x2020 is a plan to achieve a 20 percent reduction in per capita water use statewide by 2020. Reduce water demand by 10% by 2015, 20% by 2020 and 30% by 2030 through the implementation of Budget Based Tiered Rate Structures, Low Impact Development, Best Management Practices, Water Efficient Landscape and Water Conservation Ordinances and water recycling. The net increase due to Water Use Efficiency practices is expected to be 22,600 AF or more by 2030.
- **WC-2: Landscape Water Use Efficiency:** Reduce the region-wide landscape irrigation consumption of both potable and reclaimed water to an ETAF of ≤ 0.8 for pre 2010 landscapes and an ETAF of ≤ 0.7 for new landscapes, as defined in A.B. 1881. ETAF = Evapotranspiration Adjustment Factor, reflecting the average amount of water actually needed annually by efficiently-irrigated, moderately-needy plants, based on irrigated acreage and in the context of local weather.

Draft Water Quality Objectives

Under section 303(d) of the 1972 Clean Water Act, states, territories, and authorized tribes are required to develop a list of water quality limited segments. These waters do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for water quality impairment on the list and develop action plans, referred to as Total Maximum Daily Loads (TMDL), to improve water quality. In South Orange County, the SWRCB and the Regional Board staff have evaluated each addition, deletion, and change to section 303(d) based on all the data and information available for each water body and pollutant.³ The following TMDLs have been established or are being developed for Orange County waterbodies and are identified on the approved 2006 303(d) list:⁴

- Aliso Creek Indicator Bacteria
- Dana Point Harbor - Baby Beach Indicator Bacteria
- San Juan Creek Indicator Bacteria
- South County Coastal Areas Indicator Bacteria

The following Water Quality sub-objectives build upon the WMA's established goal of enhancing water quality:

³ County of Orange, 2003, *Drainage Area Management Plan*

⁴ California State Water Resources Control Board, 2006,

http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r9_06_303d_reqtmlds.pdf

- **WQ-1: Surface and Groundwater:** Meet TMDL requirements and protect the beneficial uses of surface and ground waters throughout the WMA as designated in the San Diego Regional Water Quality Control Board Basin Plan.
- **WQ-2: Drinking Water:** Ensure all South Orange County residents have equal access to safe and clean drinking water by meeting drinking water quality standards in 100% of potable water systems.
- **WQ-3: Wastewater:** Protect beneficial uses of receiving waters by implementing projects which reduce sewer spill risk through replacement of deteriorating sewer infrastructure.

Draft Wastewater Management Objectives

The WMA serves to improve wastewater management. In recent years operators of wastewater collection facilities have increased the reliability of the collection systems by video survey of sewer mains, increased cleaning of sewer mains and construction of emergency overflow basins and back-up power supplies.

The following wastewater objective reflects the WMA's dedication to increasing wastewater capacity:

- **WW-1: Capacity:** Increase wastewater pumping and treatment capacity to accept elevated flows from new storm drain diversions and other sources. Reduce the volume of sanitary sewer overflows per mile of collection system.

Draft Flood Management Objectives

To address flood management, Orange County's Flood Control Program implements an integrated process under which they conduct feasibility, hydraulic, deficiency, floodplain and value-engineering studies, collect and analyze data on an on-going basis, and design and build projects. The essential purpose of the Orange County Flood Control program is to protect Orange County life and property from the threat and damage of floods.⁵ Specific strategic goals include: planning, designing, constructing, operating, and maintaining flood management infrastructure; and eliminating the need for residents to pay costly flood insurance by improving flood control systems and removing properties from FEMA floodplains.

The following sub-objectives were developed for the WMA to provide adequate flood control throughout the County of Orange:

- **FM-1: Flood Preparedness:** Complete 100% of emergency preparedness and response plans by 2030 for areas needing flood protection and enhanced floodplain ecosystems.
- **FM-2: Promoting Flood Management:** Maintain and enhance flood protection through cooperative multipurpose water quality and flood management programs. Promote projects and programs that provide flood protection, as well

⁵ County of Orange, 2010: RDMD Business Plan:
http://www.ocpublicworks.com/Docs/2008_RDMDBusinessPlan-FINAL.pdf

as habitat and ecosystem protection and restoration. Ensure that Orange County provides the infrastructure and capacity to protect people and property from flood events by meeting or exceeding the Flood Control Infrastructure Report Card Grade of C-.

Draft Information and Data Management Objectives

Data acquisition and sharing will be accomplished through coordination among local agencies and stakeholder groups. This will further assist project proponents in monitoring and data management. As projects within the Plan are implemented, monitoring and information management will be conducted. Technical data management, research, and analysis are critical for effective watershed management. The South Orange County Group will implement data sharing on a County level to exchange information on water resources. The following sub-objectives were developed to address information and data management goals for the WMA:

- **IF-1: Technical Data:** Improve technical data management, research and analysis systems at 100% of agencies that support integrated regional water management and flood and water resources management systems.
- **IF-2: Data Sharing:** Implement GIS tracking system for regional projects by 2012.

Draft Community Integration Objectives

Community integration is an important component of the South Orange County's IRWM objectives, as the WMA has active stakeholder and community involvement. The success of the plan is driven by community support. South Orange County includes a diverse community of disadvantaged and Native American community members. The South Orange County IRWM Group will collaborate with regional tribes and other members of the general public to implement the IRWM Plan.

The following sub-objectives identify the significant level of community integration throughout the South Orange County WMA:

- **CI-1: Public Education:** Develop and implement public education programs and opportunities to target 100% of applicable target audiences as appropriate to support the goals of the IRWM Plan.
- **CI-2: Equitable Distribution:** Meet water-related needs of 100% of identifiable disadvantaged communities in the WMA.
- **CI-3: Tribal Water and Natural Resources:** Collaborate with 100% of regional tribes as needed to provide access to water programs and water systems.

Draft Climate Change Objectives

The State has mandated through Assembly Bill 32 (AB32) that greenhouse gas (GHG) emissions be reduced to 427 million metric tons of CO₂ by 2020. Further development of alternative local supplies throughout the WMA will reduce GHG generation associated with long-distance

conveyance. The WMA's water suppliers already have implemented numerous conservation, groundwater management, and water recycling programs which further reduce import volumes.

The following sub-objectives reflect the WMA's commitment to meeting the State's mandate to reduce GHG emissions:

- **CC-1: Energy Consumption:** Identify and implement projects that reduce energy consumption and/or use cleaner energy sources compared to alternate projects that achieve similar water management contributions. Reduce the energy consumption of water management practices by 20% by 2020.
- **CC-2: Greenhouse Gas Emissions:** Implement projects that mitigate greenhouse gas emissions to help meet the statewide goal to reduce GHG emission levels to 1990 levels by 2020, per AB 32.
- **CC-3: Pumping Efficiency:** Reduce energy consumption and greenhouse gas emissions by implementing projects which improve water and wastewater pumping efficiency. Reduce energy consumption at selected project sites by at least 10% upon project completion.

Through County-led watershed stakeholder meetings, the South Orange County IRWM Group and regional stakeholders also discussed the WMA's subwatersheds and participants were encouraged to discuss how the IRWM Plan would be updated to reflect the new objectives of the WMA. These ongoing watershed stakeholder meetings are comprised of representatives from the County, Cities, water and wastewater districts, major landowners, environmental groups such as Clean Water NOW!, Sierra Club, Permaculture Institute, South Laguna Beach Civic Association, Orange County Coastkeeper, Surfrider Foundation, Disadvantaged Communities, Native American Tribes, and the general public. These meetings provide for wider public participation and are a great venue for discussing IRWM issues, projects, and updates. Through the watershed stakeholder meetings, as well as regular postings on the County's WMA website (http://www.ocwatersheds.com/wma_IRWM.aspx), the County provided an overview and update on the IRWM Plan.

Based on feedback from the WMA, appropriate refinement to the objectives and sub-objectives were made by Subgroup representatives and presented back to the IRWM Group for final confirmation. Sub-objectives for each of the 10 objectives were developed with the goal of maximizing limited water resources, protecting water quality, and enhancing the environment. Where appropriate, sub-objectives were established quantitatively. For some sub-objectives, quantifiable goals are more appropriately developed at the detailed strategic and/or project levels. Detailed descriptions of each sub-objective are presented in the following sections along with the rationale for development and inclusion of each.

IRWMP Needs

To date, the South Orange County IRWM Group has developed a draft list of the regional objectives and sub-objectives, including some metrics to determine how the WMA will meet the objectives and sub-objectives. The next step in the process requires a work group to be developed to prioritize and complete the Objectives and Sub-objectives. This is a proposed task in the work plan.

Process for Developing Regional Priorities

In the 2005 adopted South Orange County IRWM Plan, specific regional priorities weren't identified. Rather, Projects were reviewed and divided into Priority A and Priority B project lists based on criteria that reflected the regional priorities. Capital improvement projects and programs were prioritized with consideration of implementing resource management strategies within a 20-year planning horizon. The following provides further details on the 2005 prioritization process:

Priority A Projects

The highest priority was given to capital improvement projects that have been collectively determined by the IRWM Group to most strongly support the multipurpose objectives of the IRWM Plan. High priority projects were determined based on the following factors:

- Importance of the project to progress toward Regional objectives.
- Appropriate multipurpose balance achieved between the four key water strategy categories: Water Supply, Water Conservation, Water Quality and Aquatic Ecosystems and Watershed Management.
- Equitable geographic distribution and participation by all IRWM Plan agencies is achieved.
- Ready to begin implementation.
- Commitment by individual agency sponsors to incorporate local funding within their fiscal year budget planning processes.
- Environmental clearance is already achieved, in progress, or readily achievable for the project.

Priority B Projects

Priority B projects were determined based on the following criteria:

- Project anticipated implemented by 2030.
- Future phases of certain highest-priority Regional Action Projects that are anticipated to extend beyond the short-term.
- Planning and feasibility projects that have not yet produced a defined capital improvement goal, but will contribute to meeting objectives within the 20-year planning horizon.
- Ongoing educational, management or non-structural projects and programs that contribute to the implementation of strategies in order to meet Plan objectives.

In addition, projects were reviewed based on their contribution to statewide priorities. The SWRCB and DWR established Statewide Priorities that include the following:

- Reduce conflict between water users or resolve water rights disputes, including interregional water rights issues.
- Implementation of Total Maximum Daily Loads that are established or under development.
- Implementation of Regional Water Quality Control Board Watershed Management Initiative Chapters, plans and policies.

- Implementation of the SWRCB's Nonpoint Source Pollution Plan.
- Assist in meeting Delta Water Quality Objectives.

IRWMP Needs

An updated list of projects has been compiled for the South Orange County WMA. However, the process for reviewing and prioritizing the project list and establishing ranking criteria has not been completed. This is a proposed task in the work plan.

Data Collection/Management and Technical Analysis

Water management data is collected throughout the region by various governmental and non-governmental organizations. This data includes surface water quality, surface flow, groundwater quality and quantity, stormwater discharge (NPDES Program), water use, and habitat assessments. The objective of data collection is to; define existing conditions, help develop water management objectives, evaluate project and overall Plan effectiveness, provide a tool for IRWM planning and decision making, and provide a means of sharing information with state agencies, stakeholders, and the general public. The proper collection, organization, storage, and dissemination of this data is essential to the continued success of regional water management and to the ongoing participation and support of stakeholders.

It is the purpose of IRWM planning to provide a regional focus, prevent duplicating data efforts, and provide access to water and land use plans, GIS data, IRWM planning information, and various technical data.

The South Orange County IRWM Group shall continue to promote the collection and dissemination of data that will provide information valuable to the management, conservation, and quality of the region's limited water supply, and for the continued preservation of the region's delicate ecological resources.

Existing Data Collection

Various monitoring is being implemented throughout the Region to meet water quality data collection needs. The following list represents monitoring efforts. All projects proposed in this plan will implement one or more of the following data monitoring efforts:

- **Water Quality Monitoring:** For those projects designed to improve the chemical quality of water, water sampling is expected to be performed in a manner compatible with State prescribed methods. A Quality Assurance Project Plan (QAPP) may also be required for such projects.
- **Ambient Water Quality Monitoring:** Monitoring data for these projects will follow the SWAMP data reporting requirements.
- **Load Reduction Monitoring:** Projects that include the removal of pollutants from water bodies will generate an annual estimate of load reductions achieved.
- **Stream and Wetland Monitoring:** Projects that include protection or restoration of streams, shorelines, or wetlands will include an annual accounting of the acreage of wetlands restored, feet of streambank and shoreline protected, and feet of stream channel stabilized, as appropriate.

- Photo-Monitoring: Projects that include restoration or construction activities will include photographic documentation in accordance with the guidelines produced by the SWRCB.

As projects within the Plan come to fruition, monitoring and information management will be implemented. To ensure data consistency and quality assurance, two activities will be employed, as consistent with the SWRCB: quality control and quality assessment. Quality control assures that adequate sampling and technical activities are employed. Quality assessment refers to the process of quantifying the effectiveness of the quality control procedures.

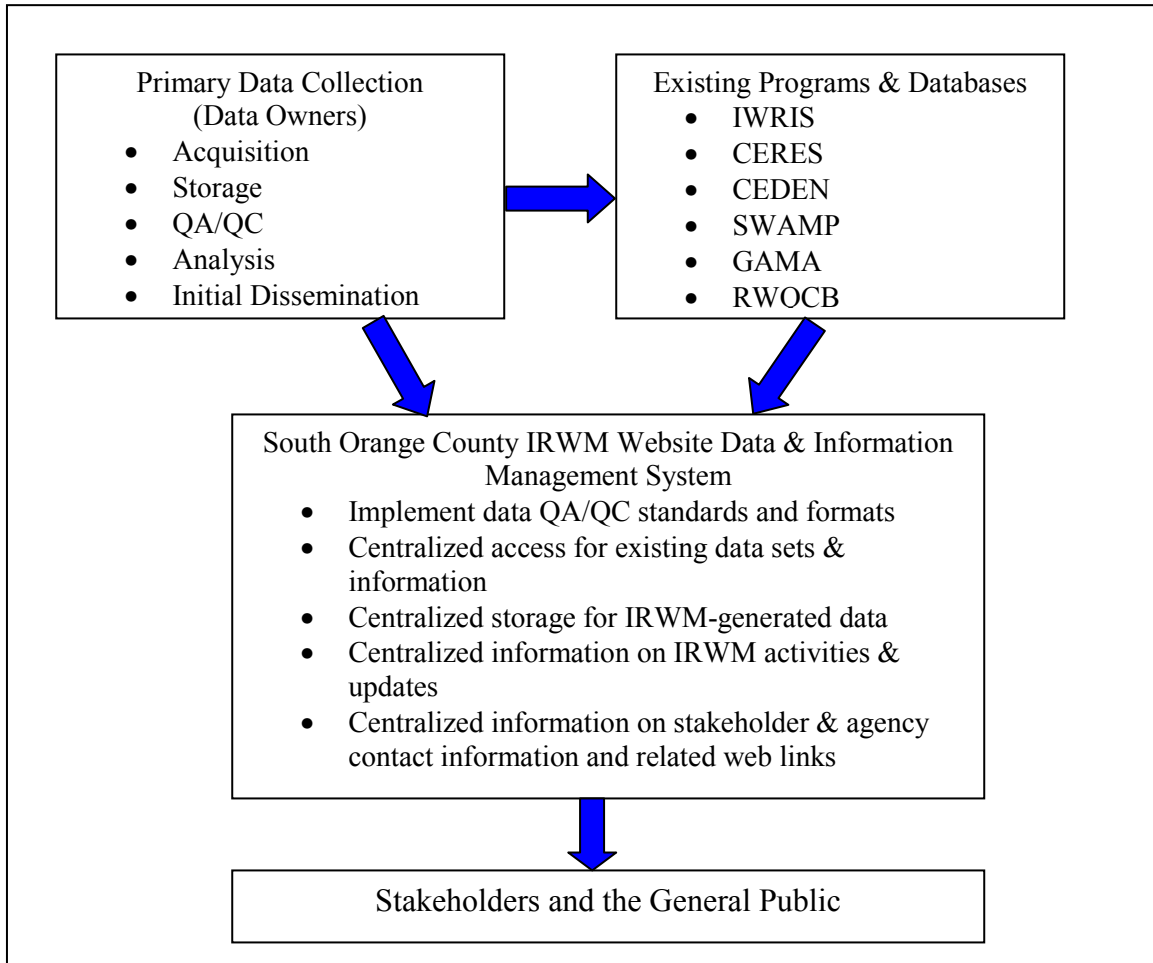
Data Management System and Dissemination

A wide variety of water and natural resource data are collected throughout the region by various entities such as permitted dischargers, non-governmental organizations, research institutes, and government agencies. The responsibility of maintaining and managing this data is typically the responsibility of the entity collecting it. It is the intent of the South Orange County IRWM Group to support data collection throughout the region and assist with consistency, management, and dissemination of the data to support regional decision making, stakeholder interests, and public education and involvement.

Orange County shall take the lead as the centralized entity for the data management process. As shown in the figure below, primary data management functions will continue to reside with the primary data collectors (data owners). The data owners are responsible for the collection, storage, quality assurance/quality control (QA/QC), analysis, reporting in compatible formats, and dissemination of the data to the County in addition to any data bases already receiving their data. Data owners are responsible for ensuring that the data disseminated to the existing state databases, including IWRIS, CERES, CEDEN, SWAMP, GAMA, and other RWQCB programs, is in a format compatible with those databases. Data owners shall also submit data in a format specified by the County for dissemination to stakeholders and the public on the County's website. The County shall post the data on its website in a user-friendly format for easy accessibility by stakeholders and the public.

The County shall; work with stakeholders to implement a consistent QA/QC program for data collection and analysis, provide a central location for data accessibility, avoid data redundancy, work to fill data gaps, and ensure data comparability. The County shall be responsible for disseminating data to IRWM Group stakeholders and to the general public.

Data Management Plan



Once information is developed, formatted, and available for dissemination, the general public and stakeholders will be able to access specific data on the County's watershed web site: www.ocwatersheds.com. Information will be posted in lay terms so that the general public will be able to gain an understanding about activities within the Region.

Data accessible on the website will focus primarily on IRWM generated data from individual Plan projects and programs. However, relevant existing data and water related data sets may be posted on the website as appropriate. Examples of data to be made available on the County's website include: raw and analyzed data sets, Plan project information, IRWM planning process information such as meeting schedules, meeting minutes, agendas, annual reports, Plan updates, etc. All data will be posted in user-friendly electronic formats accessible to the general public. Other relevant information will be made available on the website such as related web links and stakeholder and agency contact information. Other monitoring websites will be identified and utilized as appropriate during implementation of the Plan.

The South Orange County IRWM Data & Information Management System supports the IRWM Group's efforts to share collected data with other interested parties including local, state, and federal agencies by providing transparency of information and consistency of data. The data

formats will be compatible with state data management programs to provide widespread access to regional information.

IRWM stakeholders and the general public shall be informed of updates in IRWM planning procedures and online data availability through email notifications or physical mailings to interested parties. Consistent outreach with the public will encourage ongoing participation.

State Data Management Programs

To promote data reliability, the Region will implement techniques compatible with State programs such as the Integrated Water Resources Information System (IWRIS), the California Environmental Resources Evaluation System (CERES), the California Environmental Data Exchange Network (CEDEN), the Surface Water Ambient Monitoring Program (SWAMP), and the Groundwater Ambient Monitoring and Assessment (GAMA) Program.

The following provides an overview of the State information and data exchange programs, including IWRIS, CERES, CEDEN, SWAMP, and GAMA:

IWRIS: http://www.water.ca.gov/iwrisk/images/what_iwrisk.gif. IWRIS is a data management tool for water resources data. It is a web based GIS application that allows you to access, integrate, query, and visualize multiple sets of data. The IWRIS databases include the DWR Water Data Library (WDL). The WDL database stores data from various monitoring stations, including groundwater level wells, water quality stations, surface water stage and flow sites, rainfall/climate observers, and water well logs. IWRIS databases also include the California Data Exchange Center (CDEC), USGS streamflow, Local Groundwater Assistance Grants (AB303), and data from local agencies. Information on IWRIS is available at: www.water.ca.gov/iwrisk.

CERES: The California Environmental Resources Evaluation System (CERES) is an information system developed by the California Resources Agency to facilitate access to a variety of electronic data describing California's rich and diverse environments. The goal of CERES is to improve environmental analysis and planning by integrating natural and cultural resource information from multiple contributors and by making it available and useful to a wide variety of users.

CERES collects and integrates data and information and distributes it via the World Wide Web, tapping into important information sources and contributing to advances in the science of data management and metadata cataloging by encouraging cooperation among governmental, educational, and private groups.

CERES focuses on three related components: technology, data, and community. The first, technology, includes the development of new software and network structures to accommodate the search and retrieval, organization, and accessibility demands associated with huge volumes of data in a wide range of forms. The second, data, encompasses the conversion of vast quantities of information into digital form as well as the evaluation of existing digital data sets and the development of metadata catalogs required searching and data-quality and appropriate use assessment. The third, community, contains CERES' efforts to promote the use of the network for planning and policy and to foster the growth of new users and contributors in a far-reaching web of affiliations.

CERES also coordinates focused applications to support well-defined natural resource management activities and to supply the public with critical and timely information.

CERES' Web links that have been developed include:

- » Environmental Education
- » Environmental Law
- » Land Use Planning Information Network
- » Watershed Information Technical System
- » California Wetlands Information System
- » The California Environmental Information Catalog
- » California Environmental Keyword Thesaurus

Data standards are central to the exchange of information between CERES partners. Some data are exchanged by manually transferring them into a shared system. Other data are exchanged using machine to machine transfers. CERES has identified multiple websites and standards to be useful for coordinated data sharing, including the California Environmental Information Catalog (CEIC). CEIC is CERES' own online directory for reporting and discovery of information resources for California. Potential partnerships for information exchange utilizing this system include cities, counties, utilities, state and federal agencies, private businesses, and academic institutions that have spatial and other types of data resources. CEIC is based on the Federal Geographic Data Committee (FGDC) metadata standard. Contributors may enter data into the catalog via a convenient web interface, or with a batch process by exporting the data to an XML file made available to CEIC over the Internet.

CEDEN: The California Environmental Data Exchange Network (CEDEN) is another of CERES' identified websites for coordinated data sharing. CEDEN is a growing statewide cooperative data exchange program of various groups involved in the water and environmental resources of the State of California. Most of CEDEN's data exchange services are custom developed using a robust tool set which has been used to connect scores of programs into the network. Multiple projects are underway to extend CEDEN data exchange to additional standards and those services should be available in the coming year. The Surface Waters Ambient Monitoring Program (SWAMP) describes the standards used for these services, as well as the Environmental Data Standards Council (EDSC), which uses standards to establish data exchanges with the CalEPA sector of the US EPA National Environmental Information Exchange Network.

SWAMP: The Surface Water Ambient Monitoring Program (SWAMP) was proposed to integrate existing water quality monitoring activities of the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB), and to coordinate with other monitoring programs.

SWAMP is a statewide ambient monitoring effort designed to assess the conditions of surface waters throughout the state of California. Responsibility for implementation of monitoring activities resides with the nine RWQCBs that have jurisdiction over their specific geographical areas of the state. Ambient monitoring refers to any activity in which information about the status of the physical, chemical, and biological characteristics of the environment is collected to answer specific questions about the status, and trends in those characteristics. For the purposes of SWAMP, ambient monitoring refers to these activities as they relate to the characteristics of water quality.

SWAMP also hopes to capture monitoring information collected under other State and Regional Board Programs such as the State's TMDL (Total Maximum Daily Load), Nonpoint Source, and Watershed Project Support programs. SWAMP does not conduct effluent or discharge monitoring which is covered under National Pollutant Discharge Elimination System permits and Waste Discharge Requirements. In addition, local project implementation and reported water quality results will also provide additional monitoring information for the SWAMP.

Monitoring and assessment of ambient water quality and beneficial uses is necessary in order to:

- (a) Identify and characterize water quality and beneficial use problems and threats;
- (b) Identify trends in water quality and beneficial uses;
- (c) Determine whether water quality standards are met;
- (d) Evaluate the uniqueness or pervasiveness of problems;
- (e) Evaluate the severity of problems;
- (f) Make decisions about which problems and which locations should be prioritized for action; and
- (g) Make decisions about what actions should be taken.

In accordance with Clean Water Act section 305(b), the SWRCB and RWQCBs periodically compile an inventory of the state's major waters and the water quality condition of those waters, using monitoring data and other pertinent information. This inventory is known as the Water Quality Assessment. The Water Quality Assessment is the foundation upon which the TMDL Program is built, although continues to be inadequately funded.

To enhance the need for more extensive and more thorough monitoring and assessment of the waters of the San Diego region, monitoring and assessment, for both status and trends, needs to be planned, ongoing, and continuous. The San Diego RWQCB uses SWAMP resources to ensure that monitoring is conducted in each hydrologic unit once in every five-year period. The San Diego RWQCB locates monitoring sites on main stem rivers and streams, just above tidal influence; main stem rivers and streams just above the confluence with major tributaries, and major tributaries just above the confluence with the main stem rivers and streams.

In the San Juan Watershed, the nine monitoring stations are:

» Aliso Creek	1	» Bell Canyon Creek	1
» San Juan Creek	2	» Laguna Canyon Creek	1
» Arroyo Trabuco	1	» Moro Canyon Creek	1
» Oso Creek	1	» English Creek	1

Ambient monitoring is not intended to be conducted only by SWRCB / RWQCB staff. Academic and other research groups, dischargers, and other stakeholders all have a role in monitoring and assessment. The South Orange County IRWM Group will assist in meeting the goals of the Water Quality Assessment Program and the SWAMP by providing water quality data to the State's programs. This additional level of monitoring information will be conducted and coordinated with the State to enable sharing of information and avoid duplicative monitoring. The State's monitoring coordination program, initiated in July 2004, will assist in identifying

regulatory and non-regulatory monitoring efforts in the San Diego Region and to coordinate the SWAMP monitoring efforts with these programs.

GAMA: The primary objective of the Groundwater Ambient Monitoring and Assessment (GAMA) Program is to comprehensively assess statewide groundwater quality and gain an understanding about contamination risk to specific groundwater resources. The primary goals of the GAMA Program are to:

1. Improve comprehensive groundwater monitoring and,
2. Increase the availability of groundwater quality information to the public.

To facilitate a statewide, comprehensive groundwater quality monitoring and assessment program most efficiently, uniform and consistent study-design and data-collection protocols are being applied to the entire state. The GAMA Program monitors groundwater for a broad suite of chemicals at very low detection limits, including exotic chemicals such as wastewater chemicals and pharmaceuticals. Monitoring and assessments for priority groundwater basins are to be completed every ten years, with trend monitoring every three years. The SWRCB is collaborating with the U.S. Geological Survey (USGS) and Lawrence Livermore National Laboratory (LLNL) to implement the GAMA Program.

Stewardship of the state's groundwater resources is the shared responsibility of all levels of the government and community. A key aspect of GAMA is interagency collaboration, data sharing, and communication with local water agencies. While the GAMA Program remains voluntary, the Program provides the following benefits to federal, state, local, and community participants:

- Improves comprehensive statewide groundwater monitoring;
- Increases the availability of groundwater quality information to the public;
- Provides a mechanism to unite local, regional, and statewide groundwater programs in a common effort to understand and manage groundwater resources effectively;
- Facilitates interagency communication and data-sharing between federal, state, and neighboring local agencies;
- Improves understanding of local, regional, and statewide hydrogeology, as well as groundwater quality issues and concerns;
- Provides groundwater data to establish baseline conditions and early warning of potential water quality concerns;
- Provides agencies with knowledge of groundwater trends and long term forecasting in groundwater quality; which is important for groundwater management plan growth and preparation;
- Provides agencies with better information to respond to concerns of consumers and consumer advocate groups;
- Helps inter-basin agencies that have basin wide or regional groundwater management objectives; and
- Creates a database with access to groundwater quality data and provides tools to aid in completing groundwater assessments.

The GAMA Program has two sampling components: the California Aquifer Susceptibility (CAS) Assessment which addresses public supply drinking water wells and the Voluntary Domestic Well Assessment Project which addresses private drinking water wells. The CAS assessment utilizes low level volatile organic compounds (VOCs) and age dating analyses to assist in the evaluation of the hydrogeologic conditions within the groundwater basin/subbasin.

The GAMA Program is also focused on an effort to identify and centralize the many sources of groundwater data and information available in the state. As part of this effort, the SWRCB has joined with other groundwater agencies to form a Groundwater Resources Information Sharing Team. The various groundwater data sets will be made accessible to the public and interested agencies within a Groundwater Resources Information Database.

Various groundwater monitoring and assessment programs collect a significant amount of groundwater related data in various coverage and formats. Data in different electronic formats may not be as accessible as a single database of information. The lack of data comparability and sufficient data sharing significantly hampers oversight of groundwater resources.

Identification of measures that would increase coordination among state and federal agencies that collect groundwater contamination information would be beneficial. Coordination is essential for the success of a Comprehensive Groundwater Quality Monitoring Program. Increased coordination will also benefit all agencies through data sharing, training costs, and project responsibilities. The emphasis should be on increasing collaboration to effectively expand existing programs to cover a wider range of sampling, analyses, and evaluation efforts. The following measures will result in increased basic interagency coordination and communication on groundwater programs:

- » Share data (e.g., GIS Coverages);
- » Share data collection responsibilities;
- » Develop minimum sampling and analytical protocols;
- » Share specialized training;
- » Collaborate on data interpretation;
- » Share laboratory facilities and share information on laboratory methods;
- » Continue the ITF to ensure interagency coordination / communication;
- » Meet on a periodic basis to achieve these listed elements; and
- » Develop a standardized data format for electronic submittal of groundwater monitoring data.

The GAMA program recognized the value of public supply wells used in a monitoring network to assess groundwater that is used for drinking water purposes. By enhancing the analytical information already collected by the local purveyors, GAMA further analyzes for low-level VOCs and age-dating in order to assist in assessing the hydrogeology in areas that are vulnerable to surface contamination as well as be an early warning indicator of impacts. The GAMA program has already begun to assess these high priority areas.

Just as state agency data are being incorporated into a comprehensive database, local groundwater quality data may also assist in basin/subbasin and larger scale assessments. It is anticipated that the amount of local data is significant in some basins/subbasins.

Partnerships and effective coordination with the local agencies will be an important part of the GAMA Program. Thus, projects implemented as part of the South Orange County IRWM Plan that result in information beneficial to the GAMA Program will coordinate with the state to provide useful data.

Technical Analysis

The stakeholders within the South Orange County WMA have a long history of working collaboratively on studies, programs, and projects to address water quality, ecosystem restoration, and water supply. As a result, there is an extensive library of technical information about the watersheds that has been created through numerous studies and project planning efforts. The WMA continues to develop science-based studies to analyze coastal water quality impacts and identify effective solutions. Not only do the unique ecological resources in this WMA provide the impetus for integrated water resource planning, but the history of collaboration and availability of the technical information make effective planning, analysis, and project implementation possible. The planning approach and framework of the South Orange County IRWM Plan ensures that solution-oriented projects are coordinated within the WMA and that funding and project benefits are leveraged to the greatest extent possible.

Technical information and data sets are obtained from the extensive planning and technical studies that have been conducted for the WMA Watersheds. Projects are supported by specific studies and are shown in the below.

The planning studies identify opportunities and constraints for watershed projects, including habitat protection and restoration, restoration of ecosystem processes, creek restoration for flood control and water quality, stormwater programs to protect water quality, use of water quality treatment wetlands, runoff reduction through landscape conservation programs, and an array of other studies related to habitat, water quality, and water supply.

The studies conducted by the ACOE include a reconnaissance report that documents baseline conditions. The technical studies are scientifically based and measure dry and wet weather flows, constituents of concern, effectiveness of BMPs for water quality, bioaccumulation, sources and contribution to water quality degradation, effects of hydromodification in creek channels, toxicity, and others. In addition, annual monitoring reports are prepared for each TMDL, containing water quality measurements as specified in the TMDL. A monitoring report is also prepared annually for the County's (NPDES) permit, and the Orange County Health Care Agency performs weekly water quality monitoring within the watersheds. Each of these studies and regular reports has been used in the development of the Plan as they identify where specific actions are needed and offer scientifically-based recommendations for strategies.

WMA Studies/Data Sets

Reports/Studies/Planning Documents including Technical Information for 2010 Projects	Analysis Method	Results/Derived Information	Use in IRWM Plan	Reference or Source
Population Growth	Statistical Analysis	Future Population	Used to calculate future water demand	United States Census Bureau 2008
Revenue Requirements, Cost of Service Allocations, and Rate Design for the Water and Wastewater Utilities Report. Black & Veatch, October 2009.	Economic Analysis	Revenue & Costs	Used to consider IRWM Project implementation costs	City of San Juan Capistrano, Black & Veatch
Non-Domestic / Recycled Water Master Plan Update – Final Program Environmental Impact Review (Schedule No. 2006-11-11-59), Environmental Science Associates, October 2007.	Environmental Analysis	Environmental Impact	Used to consider IRWM Project Impacts	City of San Juan Capistrano, Environmental Science Associates.
Recycled Water Master Plan, AKM Consulting Engineers, 2000 (revised in 2006 with the RWMP Update) prepared for the City of San Juan Capistrano.	Master Plan Analysis	Recycled Water Needs and Expansion	Used to consider IRWM Project implementation costs	City of San Juan Capistrano, AKM Consulting Engineers.
Planned Utilization of Water Resources in the San Juan Creek Basin Area. State of California, Resources Agency: Department of Water Resources, June 1972.	Groundwater Analysis	Planned Groundwater Resources	Used to consider baseline San Juan Creek Basin area conditions	Department of Water Resources
San Juan Basin Groundwater Management and Facility Plan. NBS Lowry, 1994.	Groundwater Analysis	Groundwater Management	Used to consider Groundwater Management Facilities	City of San Juan Capistrano, NBS Lowry.
San Juan Creek Watershed Management Study, Orange County, California. U.S. Army Corps of Engineers, Los Angeles District, August 2002.	Watershed Analysis	Watershed Management Data	Used to assess condition of watershed.	City of San Juan Capistrano, ACOE
Annual Integrated Environmental Monitoring Report, Psomas, April 2004 (with annual updates in 2005, 2006, 2007, 2008, 2009), prepared for the San Juan Basin Authority.	Environmental Monitoring Analysis	San Juan Basin Groundwater Supply and Quality Data	Used to assess condition of groundwater basin.	San Juan Basin Authority, Psomas
Preliminary Well Design and Site Selection Report, Domestic Non-Domestic and Brackish Water Wells Geotechnical Consultants, Inc. 2001 prepared for Capistrano Valley Water District.	Geotechnical Analysis	Domestic, Non-Domestic, and Brackish Water Data	Used to assess groundwater quality.	Capistrano Valley Water District, Geotechnical Consultants
San Juan Creek Watershed Feasibility Study prepared by USACOE for OCFCD	Environmental Analysis	Watershed Feasibility	Used to assess watershed condition	Orange County Flood Control District, United States Army Corps of Engineers
Final Environmental Impact Report No. 589, General Plan Amendment/Zone Change, The Ranch Plan, approved by County of Orange November 8, 2004	Environmental Impact Analysis	Ranch/Open space and habitat protection and restoration	Used to assess quality and quantity of open space preserved.	County of Orange, Rancho Mission Viejo
Concept Plan for Gobernadora Basin, by Rivertech, under contract for SMWD, September 1999	Geotechnical Analysis	Current capacity of basin	Used to consider hydrologic conditions for erosion control stabilization	Santa Margarita Water District, Rivertech
Gobernadora Multipurpose Basin, by PACE, under contract for SMWD and RMV, July 2006	Geotechnical Analysis	Current capacity of basin	Used to consider hydrologic conditions for erosion control stabilization	Santa Margarita Water District and Rancho Mission Viejo, PACE
Updated Rancho Mission Viejo Runoff Management Plan – Planning Level Regional Detention Basin Strategy – 100year Urbanized Peak Flow-rate Attenuation Analysis, by PACE, under contract for RMV, dated June 2009	Attenuation Analysis	100-Year Peak Flow Rate for Regional Detention Basin	Used to consider Gobernadora Multi-Purpose Basin Project for WMA	Rancho Mission Viejo, PACE

WMA Studies/Data Sets

Reports/Studies/Planning Documents including Technical Information for 2010 Projects	Analysis Method	Results/Derived Information	Use in IRWM Plan	Reference or Source
Watershed Hydrology Analysis, Impacts Analysis, and Planning Level Mitigation Study, by PACE, under contract for RMV, dated April 2009	Watershed Hydrology Analysis	Watershed Hydrology	Used to consider Multi-purpose basin in Rancho Mission Viejo	Rancho Mission Viejo, PACE
San Juan Creek Watershed Stream Monitoring Program, prepared by PACE, dated March 2008.	Stream Analysis	Stream Monitoring Data	Used to assess water quality of San Juan Creek.	PACE
CEQA Certification for Gobernadora Multipurpose Basin, by Dudek & Associates, under contract for SMWD, pending	Environmental Analysis	Environmental Impact	Used to support Gobernadora Basin Project	Santa Margarita Water District, Dudek & Associates
Final Environmental Impact Report No. 589, General Plan Amendment/Zone Change, The Ranch Plan, approved by County of Orange November 8, 2004	Environmental Impact Analysis	Habitat Conservation Data in support of NCCP	Used to support open space Ranch Planning	Rancho Mission Viejo, County of Orange
Phase II Report on Proposed Non-Domestic Seasonal Water Storage Reservoirs prepared for SMWD by Henry Miedema & Associates dated October 19, 2004	Environmental Analysis	Seasonal Storage Data	Used to support non-domestic seasonal water storage data	Santa Margarita Water District, Henry Miedema & Associates
Impact of Regional Treatment Plant Fats, Oils & Grease (FOG) Addition On Existing Digesters (June, 2009)	Energy Analysis	Regional Treatment Plant Fats, Oils & Grease Waste to Energy Data	Used to consider impact on FOG to treatment plant	SOCWA
Greenhouse Gas Emissions Inventory Report – CY 2008 (May, 2009)	Energy Analysis	Greenhouse Gas Emissions Data	Used to consider GHG emissions for WMA	SOCWA
Regional Treatment Plant AQMD Rule 1110.2 Compliance (August, 2008)	Air Quality Analysis	Wastewater Treatment Plant Air Quality	Used to consider treatment plant FOG project	SOCWA
Alternative AWMA Access Road Alignment (2009)	Coastal Treatment Export Sludge System Rehabilitation Analysis	Feasibility of Coastal Treatment Export Sludge Rehab	Used to consider treatment export sludge rehabilitation project	SOCWA
Export Sludge Equalization Basin Preliminary Design (2005)	Coastal Treatment Export Sludge System Rehabilitation Analysis	Feasibility of Coastal Treatment Export Sludge Rehab	Used to consider treatment export sludge rehabilitation project	SOCWA
Miscellaneous Biological Surveys in Aliso and Wood Canyon Wilderness Park (2000 – 2008)	Biological Analysis	Biological data	Used to consider biological condition of wilderness parks	SOCWA
Plant 3A Aeration System Evaluation Assessment (May, 2008)	Wastewater Treatment System Analysis	Aeration System data	Used to consider project for WMA.	SOCWA
J. B. Latham Strategic Plan (Underway)	Facility Analysis	Underway	Will be used to consider treatment plant planning	SOCWA
J. B. Latham Treatment Plant AWT Facility Value Engineering (September, 2009)	Value Engineering	Cost data for Treatment Plant Upgrade	Used to assess Treatment Plant Aeration System/Cogeneration Upgrade Project	SOCWA
Aeration and Co-Generation System Upgrade for the J. B. Latham Treatment Plant (July, 2009)	Treatment Facility Analysis	Feasibility of Aeration and Co-Generation Upgrade for Treatment Plant	Used to assess Treatment Plant Aeration System/Cogeneration Upgrade Project	SOCWA
Nolte & Associates, South Orange County Reclamation Authority, Salt Balance Model, 1991	Salinity Analysis	Water Reclamation Feasibility	Used to consider Salt & Nutrient Management	SOCWA, South Orange County Reclamation Authority, Nolte & Associates

The Plan also incorporates the agencies' adopted master plans for water, wastewater, and recycled water systems, each of which includes a detailed engineering analysis of current system conditions, future service demands, and system improvements.

This extensive knowledge base incorporating planning studies, science-based technical studies, and engineering studies has enabled the Plan to be developed through an informed stakeholder process. Because of this valuable resource, watershed management issues and conflicts have been clearly identified, the objectives directly respond to those issues, and implementation of the strategies and projects has been selected based on the findings and recommendations of those studies.

Technical Analyses and Methods

The South Orange County WMA performs monitoring to obtain sound technical information, analyses, and methods. Monitoring is intermittent surveillance carried out in order to ascertain compliance with a standard or deviation from an expected norm to:

- Determine compliance with standards,
- Construct, adjust and verify predictive models,
- Provide information to evaluate abatement measures and identify progress against control objectives, and
- Provide early warning of future problems.

Many of the WMA's monitoring programs and activities provide data that are useful to IRWM planning and management in the WMA. This section provides an overview and description of efforts thought to be of particular importance to integrated, regional planning, but is not intended as a comprehensive survey of all programs and activities.

Water Supply Monitoring. - Operators of public water systems conduct routine monitoring to ensure that the water they produce complies with Safe Drinking Water Act standards. Results are reported to the State of California Department of Health Services (DHS). Monitoring broadly encompasses several categories of constituents.

Sampling is conducted at treatment plants, within distribution systems, and at the tap, and monitoring results are evaluated to ensure that applicable drinking water quality standards are met. For regulated constituents, results are compared to Primary and Secondary MCLs, and unregulated contaminants are evaluated against DHS Detection Limits for Purposes of Reporting (e.g., color, corrosivity, and odor).

Small water systems (i.e., community water systems that serve 199 connections or less from groundwater supply wells) are also required to conduct routine monitoring and report to the County Department of Environmental Health (DEH).

Monitoring for constituents for all water suppliers is conducted every three years, and more frequent monitoring is conducted for bacteria and nitrates.

Surface Water Quality Monitoring - Numerous federal, state, and local agencies and organizations have conducted surface water quality monitoring in the WMA over the past several decades. WMA and site-specific surface water quality monitoring efforts are currently underway, including the following:

- Core Monitoring – Routine, ongoing water quality monitoring within the regulatory framework of the National Pollutant Discharge Elimination System (NPDES) and Total Maximum Daily Loads (TMDL) monitoring programs. This type of monitoring addresses clearly defined questions related to point, non-point and targeted pollutant levels with a commitment to improving our understanding of County specific environmental issues.
 - Unified Program Effective Assessment (PEA) report - The Unified PEA is an annual report provided by the County of Orange as the Principle Permittee in collaboration with the cities / co-permittees within the county. The water quality data and their analyses are presented in Section C-11 of the Unified PEA.
- Regional Monitoring – Periodic, collaborative, and larger-scale multi-agency surveys.
 - Southern California Bight Studies – The Bight studies, coordinated by the Southern California Coastal Water Research Project (SCCWRP), utilize standardized sampling and analytical methods to produce a wide range of data from both impacted and reference areas.
 - Stormwater Monitoring Coalition (SMC) – The SMC often use exploratory data analysis methods to investigate new measurement methods, improve basic understanding, characterize problems, or provide one-time measurements of important parameters or processes.
 - Coastal Receiving Water Regional Program – A model monitoring program that consolidates coastal receiving waters pathogenic indicator bacterial monitoring efforts for OC Public Works, OC Sanitation District, South Orange County Wastewater Authority, and OC Health Care Agency.
- Special Studies/ Research – OC Watersheds along with cities, governmental agencies, NGOs and/ or universities has a strong commitment to advancements in water quality science through focused special studies to answer specific issues of concern related to Orange County. For further information on current studies or studies of interest, please go to OC Watersheds Research.
- Watershed Sanitary Surveys - Per the California Surface Water Treatment Rule (Title 22 of the California Code of Regulations), every public water system using surface water is required to conduct a comprehensive sanitary survey of its watersheds every five years. The purpose of such a survey is to identify actual or potential sources of contamination or any other watershed-related factor which might adversely affect the quality of water used for domestic drinking water. Source water is analyzed for organic and inorganic constituents, microorganisms, and general physical characteristics, and results compared to the MCL and/or SMCL standards for drinking water. Potential sources of contaminants in the watersheds draining into reservoirs are examined through a review of various data sets including existing aerial photographs, GIS data, reports, water quality data and other record documents, and supplemented by field surveys.
- Southern California Coastal Water Research Project (SCCWRP). SCCWRP is a joint powers agency focusing on marine environmental research for the Southern California Bight. SCCWRP gathers scientific information so that member agencies can effectively and cost-efficiently protect the Southern California marine environment. Although SCCWRP has traditionally focused its efforts on wastewater discharges from Publicly

Owned Treatment Works (POTWs), SCCWRP in recent years has developed and refined urban runoff and surface water quality monitoring programs. South Orange County WMA uses scientific data and information from SCCWRP to analyze the WMA.

Groundwater Monitoring - Groundwater monitoring data are available through a variety of sources in the WMA.

- USGS National Water Information System (NWIS) - The USGS National Water Information System (NWIS) supports the acquisition, processing, and long-term storage of water data. This system provides real-time data on depth to groundwater.
- Waste Discharge Compliance Monitoring - NPDES permits contain monitoring requirements to verify compliance with applicable conditions. NPDES permit requirements often include groundwater monitoring. For example, the Regional Board has established monitoring programs for recycled water and wastewater operations that discharge to groundwater. Dischargers must periodically collect and analyze groundwater quality samples from wells representative of the receiving groundwater. The Regional Board has established groundwater monitoring requirements for within many of the WMA's watersheds.
- Underground Storage Tank Monitoring - The Regional Board and DEH require groundwater monitoring as part of regulating compliance with underground tank regulations. Monitoring associated with underground storage tanks is normally limited to the immediate vicinity of the underground tank (to check for tank leaks). At documented remediation sites where leaks have been detected, however, extensive groundwater monitoring is required to document site remediation and recovery.
- Special Studies and Projects - Groundwater quality data are also periodically collected or compiled as part of special studies, including CEQA evaluations, groundwater supply investigations, scientific studies conducted by government or research organizations.

Habitat and Natural Resources Monitoring -A significant variety of habitat data has been collected within the WMA. Data have been collected as part of site-specific or project specific investigations (e.g. CEQA analyses), educational or scientific investigations, volunteer organizations, and WMA habitat conservation programs. The most significant ongoing habitat monitoring programs are conducted as part of the NCCP efforts and include:

- The Natural Community Conservation Planning (NCCP) – This program of the California Department of Fish and Game (CDFG) is a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. An NCCP identifies and provides for the regional or area wide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. South Orange County WMA has completed the following ongoing efforts as part of the NCCP - 1) Creation of a permanent Habitat Reserve consisting of nearly 60,000 acres owned by Orange County and contained within three existing Orange County regional and wilderness parks (O'Neill Regional Park, Riley Wilderness Park and Casper's Wilderness Park) and 20,868 acres

owned by Rancho Mission Viejo, LLC,. 2) Formulation and implementation of a Habitat Reserve Management Program (HRMP) 3) Receipt of State and Federal regulatory coverage and provisions for the impacts of proposed Covered Activities on proposed Covered Species and CDFG Jurisdictional Areas; and 4) Execution of an Implementation Agreement and identification of funding necessary to implement the HRMP. South Orange County WMA continues to gather data throughout this extensive Habitat and Natural Resources Monitoring process.

Although the WMA has a strong commitment to advancements in water quality science through focused special studies, there is a need to address concerns including participation in regional monitoring programs that involve southern California as a whole. Some of our special studies that help us to better understand our watersheds focus on the following issues:

- Pathogenic and Fecal Indicator Bacteria Contributions
 - Coastal urbanized streams
 - Beaches and closed embayments
- Natural Source Contributions
 - Geologic Contributions to Urban Stormwater Runoff
- Stream Ecology Alteration Source Characterizations
 - Hydromodification Effects on Water Quality
 - Trash and Litter Monitoring Programs
- Invasive Aquatic Species
 - New Zealand Mudsnaills
 - Giant Reed (*Arundo donax*)
- Environmental Toxicity Identification Evaluations
 - Water quality impairment pollutant source characterization
 - Sediment quality habitat degradation in coastal estuaries
- Effects of Urbanization on Stream Physical Habitat
 - Hydromodification
- Biological Objectives
 - Coastal stream benthic macroinvertebrate assemblages

Data Gaps

Many governmental and non-governmental organizations currently collect surface water quality, surface flow, groundwater, habitat, and water use data within the WMA. Regional stormwater data collection efforts have been coordinated and managed by the regional NPDES stormwater Copermittees, but no central or organized data management structure exists for the majority of the WMA's water management data. Significant data gaps exist in the collection and assessment of regional surface water quality, groundwater quality, groundwater availability, and habitat and climate change data. Filling the data gaps and coordinating data collection and management within the WMA will be required to assess regional water management needs and to assess the effectiveness of implemented water management projects.

Water Quality Monitoring

Despite the extensive ongoing water resources monitoring within the WMA, opportunities exist for additional data gathering to close existing gaps. Monitoring is generally conducted to support specific organizational, regulatory, or research objectives rather than within a regional or

integrated framework. As a result, many of the gaps discussed here are related to a general lack of regional, integrated planning and concomitant data support strategies. Since a primary purpose of IRWM planning is to provide that regional focus, it is expected that this assessment of gaps will be updated and refined substantially over the next several years.

There are an extensive number of studies that have been completed for the Aliso Creek, Laguna Coastal Streams, San Juan Creek, San Clemente Coastal Streams, and San Mateo Watersheds, and there are a number of studies planned or underway. These studies are being conducted to address identified data gaps, such as those described in the 2003 Drainage Area Management Plan Watershed Action Plans.

The SWAMP has completed one round of monitoring in all watersheds in 2005. Currently the Regional Board is having all watershed related data analyzed and prepared into reports to assess the magnitude and extent of existing data and to identify existing data gaps. Monitoring was conducted for conventional water chemistry, water and sediment toxicity, fish tissue contamination, and bioassessment. Future SWAMP monitoring will evolve to address the results of these assessments.

Pollutants and Sources

Many data gaps exist within the WMA's programs to monitor pollutants and sources, as described below:

Characterization of Nonpoint Sources

Nonpoint source (NPS) pollution is considered to be the major contributor of pollution to impacted streams, lakes, wetlands, estuaries, marine waters, and groundwater basins, and the leading cause of water quality impairments, in California. Yet, despite the existence of a myriad of programs focused on various aspects of NPS management (e.g., State Board NPS Program, Municipal Stormwater Permit, TMDLs), ongoing efforts are hampered by a lack of specific knowledge about the individual sources within the WMA's watersheds that collectively constitute NPS pollution. For instance, the Regional Municipal Stormwater Permit requires that local jurisdictions implement programs to address impacts from commercial and industrial business types, these sources are present by the tens of thousands throughout the WMA. In the long-term, effective management will require that data collection be focused on better characterizing the specific sources of priority pollutants in the WMA's watersheds. Not only must specific activities and processes occurring on-site be better understood, but our knowledge of how threats to water quality varies within broad categories of regulated sources (e.g., residences, restaurants, etc.) must also be increased.

Agricultural Runoff and Sources

Water quality monitoring of agricultural runoff has been identified as an additional data gap. Chemicals applied during agricultural operations (e.g., pesticides and fertilizers) may be carried into the ground, and to surface or groundwaters. The extent of contamination resulting from agricultural practices is currently unknown, and should be addressed in future data collection efforts.

Pathogen Impacts and Loading

Recreational uses are among the most important beneficial uses of many of the WMA's receiving waters. However, in recent years, section 303(d) listings for bacterial indicators have become increasingly common. The greater than 40 existing listings for bacterial indicators are problematic because the indicators themselves are not thought to present a threat to humans, i.e., their presence is merely an indicator of the potential presence of disease organisms. Future monitoring would benefit from the development of measures that provide a better indication of actual risk, as well as a basis for the identification and assessment of specific management measures. Likewise, site specific epidemiological studies and source investigations (e.g., DNA source tracking) may also be indicated.

Evaluation of Source Load Reductions

While considerable data collection has focused on identifying water quality problems and impairments throughout the WMA, little is known about the effectiveness of specific management measures targeted to remedy these problems. The 2007 Municipal Stormwater Permit requires that source load reductions be determined for a variety of sources regulated under the program. However, the current state-of-the-art for conducting load reduction estimates, especially at a broad programmatic level, is poorly evolved. Considerable effort is currently being invested in the development of new methods, but data are generally not available to support estimation either of nonstructural BMP effectiveness or implementation frequency. This data gap must be addressed to improve the effectiveness and cost-efficiency of pollution management programs.

Receiving Water Monitoring

Data gaps exist within the WMA's watershed sampling, streamflow monitoring, and groundwater monitoring programs.

Representative Watershed Sampling

Water quality monitoring that does not include the upper portions of many of the WMA's watersheds presents a spatial data gap. Stormwater programs have conducted mass loading monitoring at the base of the WMA's watersheds since 1993-94. However, while useful for focusing and prioritizing efforts regionally, this approach is limited in its ability to provide a representative characterization of the quality of receiving waters within these watersheds. The addition of Temporary Watershed Assessment Stations in the 2007 Municipal Stormwater Permit will begin to address this data gap, but additional focus on augmenting upstream data sets will be required in the future. Expanding the numbers and locations of monitoring stations would also provide a more representative assessment of water quality for completing updates of the 303(d) list of water quality impairments in the WMA, and would better support source identification and management efforts.

Streamflow Monitoring

Ongoing streamflow monitoring provides a basic statistical understanding of surface water flows within major streams and rivers in the WMA. A larger number and greater geographical distribution of streamflow gauging stations, however, is required to assess streamflow recharge of groundwater, to provide a better understanding of streamflow within smaller watersheds and lesser tributaries, and to provide streamflow data needed to develop TMDLs.

Groundwater Monitoring

While groundwater data are collected in many watersheds within the WMA, data are insufficient to adequately characterize groundwater quality, groundwater availability, and aquifer characteristics throughout much of the WMA. This is particularly evident in areas exclusively dependent on groundwater supplies. Groundwater data are sufficient to characterize groundwater quality and availability only within some of the WMA's major aquifers. More water quality data is needed to effectively characterize and manage water quality problems. Spatial and temporal understanding of groundwater quality in these areas is therefore lacking. A centralized, coordinated groundwater data collection effort would be required to allow for more complete characterization of groundwater availability and quality within the WMA. Data needs include the development of chloride mass balance method to compare to current Thronthwaite methodology of assessing groundwater recharge, more stream gauging of creeks in the groundwater reliant areas to better quantify runoff factor in recharge equations and more monitoring wells in fractured rock aquifers to provide a better understanding of existing quantities.

Monitored Constituents

Because monitoring strategies are often driven by regulatory mandates, the selection of monitored constituents tends to be broad, inclusive (e.g., all EPA Priority Pollutants), and static. In the past several years, watershed and water quality management in the WMA has evolved to become increasingly focused on specific issues and problems. Likewise, watershed sources of pollution are in continual flux. For instance, it is estimated that there are currently more than 85,000 chemicals in commerce the U.S., with more than 2,000 new chemicals being added to this mix annually (a rate of seven per day).

Although the nature of water and environmental pollution generally remains the same over time, the details clearly do not. Monitoring and data collection must therefore become increasingly focused on newly identified priorities, as well as "emerging chemicals of concern" (e.g., pyrethroid pesticides, brominated flame retardants, nanoparticles, and pharmaceutical wastes).

Habitat and Natural Resource Monitoring

Habitat mapping efforts within the WMA are reasonably complete, but significant additional data collection is needed to better address habitat health and viability and to update habitat maps. Additional habitat health, species composition, and invasive species data are required in all watersheds to provide for a greater understanding of geographic-, temporal-, and water quality-related trends. Although several federal, state and local agencies collect data with respect to the quantity and quality of habitat, currently no single entity can provide a comprehensive assessment of such data.

Monitoring and Assessment Approaches

In some instances, data gaps could be addressed through modifications to existing monitoring and assessment approaches. For instance, monitoring approaches that better focus on water quality or environmental "risk," rather than static regulatory benchmarks such as chemical concentrations, could better and more cost efficiently focus management efforts toward solutions. Likewise, considerable benefit, including cost-savings, could be achieved through data gathering approaches that are designed to assess cumulative impacts rather than those of a single source or

project. Another key issue with respect to monitoring approaches is that of linkages between media. Although the cycling of many constituents between water supply systems, surface waters, groundwater, and potentially biota, is well understood from a theoretical perspective, little real world data exist to support the development of effect management approaches. For instance, high levels of TDS have been documented in supplied water, surface waters, and groundwater throughout the WMA. Future data collection will need to be increasingly focused on characterizing and managing this problem.

Finally, an increased understanding of the dynamics of the systems within which existing monitoring is conducted would be beneficial. The WMA has a strong commitment to advancements in water quality science through focused special studies to answer specific issues of concerns including participation in regional monitoring programs that involve southern California as a whole. Some of our special studies that help us to better understand our watersheds focus on the following issues:

- Pathogenic and Fecal Indicator Bacteria Contributions
 - Coastal urbanized streams
 - Beaches and closed embayments
- Natural Source Contributions
 - Geologic Contributions to Urban Stormwater Runoff
- Stream Ecology Alteration Source Characterizations
 - Hydromodification Effects on Water Quality
 - Trash and Litter Monitoring Programs
- Invasive Aquatic Species
 - New Zealand Mudsnaills
 - Giant Reed (*Arundo donax*)
- Environmental Toxicity Identification Evaluations
 - Water quality impairment pollutant source characterization
 - Sediment quality habitat degradation in coastal estuaries
- Effects of Urbanization on Stream Physical Habitat
 - Hydromodification
- Biological Objectives
 - Coastal stream benthic macroinvertebrate assemblages

However, more monitoring data is needed to assess the integration of the pollutants and how the WMA can more effectively address water quality issues. Despite the efforts underway, more monitoring data and technical analysis with subsequent data management and dissemination throughout the region are needed.

IRWMP Needs

As the Priority Projects are developed within the IRWM Plan, the data and technical analysis and management process will be further developed. In order to fill data gaps, a Climate Change Analysis, Salt and Nutrient Management Plan, Floodplain Management Planning, and Groundwater Management and Facilities Plan need to be completed and incorporated into the South Orange County IRWMP. These are proposed tasks in the work plan.

Integrated Resource Management Strategies

Strategy integration includes implementing various projects that, when combined, achieve a synergistic approach to watershed management, which is beneficial because it increases overall benefits to the region's natural resources and governing entities. The method for achieving full integration of strategies is through the careful implementation of the various projects. Though the projects must address at least one of the strategies targeting a regional objective, the majority incorporate several complementary strategies, often to achieve multiple objectives. For example, projects that meet the resource management strategy of practice resources stewardship, will also assist in meeting other strategies, including increase water supply by offsetting imported water supply needs; watershed management through implementation of conservation measures throughout the watershed to enhance water use efficiency; reducing water demand by utilizing recycled water supplies; and improve operational efficiency and transfers by effectively addressing water issues and ways to incorporate water conservation measures in proposed development. The method for achieving full synergy is through identifying projects where the majority of the projects incorporate several complementary strategies, often to achieve multiple objectives. Strategies and projects that address multiple objectives are typically the most cost-effective and resource-efficient, and are for the most part given higher priority in the IRWM Plan.

South Orange County carefully reviewed the water management strategies from the 2005 IRWM Plan and the resource management strategies from the California Water Plan Update 2009. A key objective of the California Water Plan Update 2009 is to present a diverse set of resource management strategies to meet the water-related resource management need of each region and statewide. There are 27 resource management strategies that can help meet various water plan objectives to:

- Reduce water demand
- Improve operational efficiency and transfers
- Increase water supply
- Improve water quality
- Practice resource stewardship
- Improve flood management

The IRWM Group's approach to developing resource management strategies included evaluating the 2009 California Water Plan strategies, the 2005 water management strategies, and the 2010 draft objectives. These strategies were evaluated based on their applicability to the South Orange County IRWM WMA.

Nearly all types of resource management strategies are applicable and considered within the South Orange County IRWM Plan and proposed projects. However, there are several that appear to be not applicable to the South Orange County WMA.

IRWMP Needs

The next step in developing the Resource Management Strategies will be to develop a South Orange County work group that would review and complete the draft list of resource management strategies. Subsequently, the strategies would be re-defined to meet the unique needs of the South Orange County WMA. Once the strategies are completed, priority projects would be identified to

show how the resource management strategies will be employed. These are proposed tasks in the work plan.

IRWM Plan Implementation and Impacts and Benefits

The South Orange County IRWMP will document expected impacts and benefits of implementation of the IRWM Plan, as well as clearly communicate those impacts and benefits to stakeholders. This Section contains discussion of the potential impacts and benefits of plan implementation. In the development of an IRWM Plan, it is important that participants understand the potential benefits to be gained by implementing a regional plan and some of the impacts that may occur. The Impacts and Benefits shall serve as a benchmark as the Plan is implemented and Plan performance is evaluated. Detailed project-specific impact and benefit analyses will occur prior to any implementation activity.

Additionally, coordination among the Tri-County FACC will be required to ensure that inter-regional benefits and impacts of proposed IRWM projects are considered. Collaboration among the San Diego, Upper Santa Margarita, and Orange County Regions through the Tri-County FACC will result in implementation of projects and programs that are mutually beneficial for water managers throughout the Funding Area. Potential negative impacts associated with this collaboration are limited to construction-related impacts associated with individual projects. However, project-specific and/or programmatic environmental compliance processes will mitigate those impacts

IRWMP Needs

The list of implementation projects will change as the IRWM planning effort matures. Since the Objectives, Resource Management Strategies, and Priority Projects have not been completed, an analysis of impacts and benefits can not be accomplished. Tri-County FACC coordination is also required to assess the impacts and benefits of projects are implemented. Therefore, these tasks are included in the work plan.

IRWM Plan Standards

The 2005 adopted South Orange County IRWM Plan complied with Proposition 50, Chapter 8 Integrated Regional Water Management Plan Standards and was accepted by the State Water Resources Control Board under the IRWM Grant Program. The \$25,000,000 grant award for the South Orange County IRWMP confirmed IRWM Plan compliance.

The 2005 adopted South Orange County IRWM Plan met the following IRWM Plan Standards:

- | | |
|-----------------------------------|-------------------------------|
| ▪ Regional Water Management Group | ▪ Technical Analysis and Plan |
| ▪ Regional Description | Performance |
| ▪ Objectives | ▪ Data Management |
| ▪ Water Management Strategies | ▪ Financing |
| ▪ Integration | ▪ Statewide Priorities |
| ▪ Regional Priorities | ▪ Relation to Local Planning |
| ▪ Implementation | ▪ Stakeholder Involvement |
| ▪ Impacts and Benefits | ▪ Coordination |

Since the Proposition 84 IRWM Plan standards built upon the 2005 IRWM Plan Standards, portions of the existing 2005 IRWM Plan partially meet the new standards. However, the 2005

IRWM Plan in its entirety doesn't fully comply with the current Proposition 84 IRWM Plan standards. As identified throughout the background discussion and proposed work plan, portions of the following IRWM Plan standards need to be revised to meet the new Prop 84 IRWM Plan Standards:

- | | |
|-----------------------------------|---------------------------------------|
| ▪ Governance | ▪ Finance |
| ▪ Region Description | ▪ Technical Analysis |
| ▪ Objectives | ▪ Relation to Local Water Planning |
| ▪ Resource Management Strategies | ▪ Relation to Local Land Use Planning |
| ▪ Integration | ▪ Stakeholder Involvement |
| ▪ Project Review Process | ▪ Coordination |
| ▪ Impact and Benefit | ▪ Climate Change |
| ▪ Plan Performance and Monitoring | ▪ Updated Maps and Figures |
| ▪ Data Management | |

Tri-County FACC – Inter-Regional Coordination

In order to effectively plan and implement water management projects on watershed lands that span neighboring IRWM regions, the Region must coordinate and collaborate with the other RWMGs on the Tri-County FACC (Upper Santa Margarita and San Diego). As provided in DWR's Plan Standards, neighboring IRWM regions shall develop partnerships to address common issues. The Tri-County FACC builds a foundation that ensures sustainable water resources planning within the entire Funding Area.

IRWMP Needs

Several of these standards need to be incorporated into the South Orange County IRWM Plan through regional processes. To fill data gaps and comply with new state requirements, a Climate Change Analysis, Salt and Nutrient Management Plan, Floodplain Management Planning, Groundwater Management and Facility Plan and updated maps and figures corresponding to the revised IRWM Plan need to be completed. In addition, the IRWM Plan needs to address coordination with the Tri-County FACC to coordinate planning and implementation within watershed overlay areas. These tasks are included in the work plan.

Summary

In summary, the South Orange County 2005 IRWM Plan needs to be revised to meet the new Prop 84 IRWM Plan Standards. A portion of the IRWMP update has been initiated; however, the following components need to be completed: water related objectives and conflicts, regional priorities, data and technical analysis & management, employment of integrated resource management strategies, IRWM plan and implementation and impacts & benefits, climate change analysis, salt and nutrient management planning, and floodplain management planning. Updated Maps and Figures are also required to clearly identify the South Orange County IRWM Group and Watershed Management Area (WMA). These components are described in the proposed Work Plan. The Work Plan is organized into the following sections: 1) Climate Change Analysis, 2) Salt & Nutrient Management Planning, 3) Floodplain Management Planning 4) Groundwater Management and Facility Planning, and 5) Revised South Orange County IRWMP to meet Proposition 84 IRWM Plan Standards. The proposed Work Plan is described in the following section.